SLV-AV100B/NP/UX/VC
RMT-V193/V193A

SERVICE MANUAL

AEP Model
SLV-AV100B/NP/VC
UK Model
SLV-AV100UX

(Photo : SLV-AV100B/RMT-V193A)

Remote commander is
available as a unit.
See page 6-1 for repair parts.

Hi-Fi

H MECHANISM

- Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT IV (H MECHA) for MECHANICAL ADJUSTMENTS. (9-973-623-11)

SPECIFICATIONS

System

Channel coverage
PAL: (UX)
UHF E21 to E69

PAL (B/G) : (B/NP/VC)
VHF E2 to E12
VHF Italian channel A-H
UHF E21 to E69
CATV S01 to S05, S1 to S20
HYPER S21 to S41

RF output signal
UHF channels 28 to 55

Aerial out
75-ohm asymmetrical aerial socket

VCR Inputs and outputs

VIDEO OUT (EURO-AV)
EURO LINE IN (UX)
PAY-TV DECODER/CANAL+ (B/NP/VC)
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3

VIDEO 1 IN
VIDEO 2 INPUT
LINE IN (B/NP/VC)
VIDEO IN, phono jack (1)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, phono jacks (2)
Input level: 327 mVrms
Input impedance: more than 47 kilohms

MONITOR VIDEO OUT
Phono jack (1)
Output signal: 1 Vp-p, 75 ohm (unbalanced), sync negative

AUDIO OUT (B/NP/VC)
Phono jack (2)
Rated output level: 327mVrms
Load impedance: 47 kilohms
Output impedance: less than 10 kilohms

Amplifier

POWER OUTPUT

Stereo Mode
DIN 1 kHz, 4 ohms, 75 W + 75 W

Surround mode
(DIN 1 kHz, 4 ohms)

Front	50 W/ch
Centre	50 W (only in the PROLOGIC and THEATRE mode)
Rear	50 W

Frequency response
TUNER, CD, TAPE/MD, VIDEO 1, VIDEO 2, TV, and LINE : 10 Hz - 20 kHz ± 1 dB

Inputs

CD

Sensitivity	220 mV
Impedance	50 kilohms
S/N	82 dB
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5 V)

TUNER, TAPE/MD, VIDEO1, VIDEO2, TV, and LINE

Sensitivity	180 mV
Impedance	50 kilohms
S/N	82 dB
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5 V)

– Continued on next page –

VHS
PAL NTSC 4.43

AMPLIFIER INTEGRATED VIDEO CASSETTE RECORDER

SONY®

MICROFILM

Outputs

TAPE/MD REC OUT
Voltage 180 mV,
Impedance 10 kilohms
MIX OUT
Voltage : 2 V
Impedance : 10 kilohms
PHONES
Accepts low and high impedance headphones

Muting

–20 dB

BASS BOOST

+10 dB at 70 Hz

TONE

±8 dB at 100 Hz and 10 kHz

General

Power requirements

230 V AC, 50 Hz

Power consumption

180 W

(During stand-by with the STANDBY DISPLAY switch set to OFF)

4.6 W

AC outlet (B/NP/VC)

Switched 100W

Operating temperature

5°C to 40°C

Storage temperature

–20°C to 60°C

Dimensions

Approx. 430 × 157 × 430 mm (w/h/d)
including projecting parts and controls

Mass

Approx. 13.7 kg

Supplied accessories

Remote commander (1)
R6 (size AA) batteries (2)
Aerial cable (1)

Design and specifications are subject to change without notice.

DESTINATION DIFFERENCE SCHEMATIC COMPONENT TABLE LIST

This manual are for the SLV-AV100B/NP/UX/VC. Check model number by locking at the rear panel of VCR.

MODEL FEATURE	B (French)	NP (Spanish)	VC (AEP)	UX (UK)
Recording/Playing broadcast systems (MA-283 BOARD)	B/G L NICAM	B/G NICAM	B/G	I NICAM
Recording Canal +/PAY–TY programmes (IO-56 BOARD)	○	○	○	—
Recording/Playing SECAM (MA-283, RP-213, TK-39 BOARD)	○	—	—	—
Recording TV programmes (G-CODE/SHOW VIEW/VIDEO Plus+)	SHOW VIEW	SHOW VIEW	SHOW VIEW	VIDEO Plus+

The remote commander used for each model is as follows.

- RMT-V193 :
  SLV-AV100UX
- RMT-V193A :
  SLV-AV100B/NP/VC

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SERVICE NOTE

1. REMOVAL OF DRUM ASSEMBLY

1) Remove the screw ① (P3x8)
2) Remove the shaft ground assembly ②.
3) Remove three screws ③ (P3x6).
4) Remove the drum assembly ④.

Note: When attaching the drum assembly, be careful not to blur the contacting surface with fingerprint or like.
When attaching the shaft ground assembly, be careful not apply force to the spring section of it.

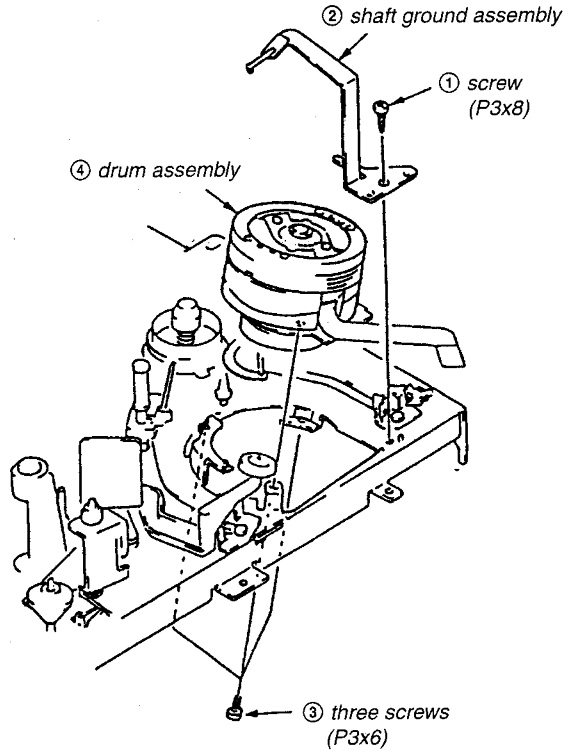

② shaft ground assembly
① screw (P3x8)
④ drum assembly
③ three screws (P3x6)

Fig. 1.

2. UPPER DRUM REPLACEMENT

2-1. Removal of Upper Drum

1) Remove the screw ① (P3x8).
2) Remove the shaft ground assembly ②.
3) Completely remove the rotary upper drum board and desolder the soldering indicated by the arrows. (16 points)
4) Remove the screws ③ (PSW 3x8) and tape out the rotary uppper drum assembly in the direction of arrow. (See Fig. 3.)
If it is difficult, remove by shaking the rotary upper drum gradually.
Note: If the drum can not be removed, check whether the solders have been removed or mot again.

2-2. Mounting Upper Drum

1) Mount the rotary upper drum assembly by aligning marked ➡ with marked ⇒ of rotary transformer board (lower drum) so that the screw holes of both upper and lower drums match.

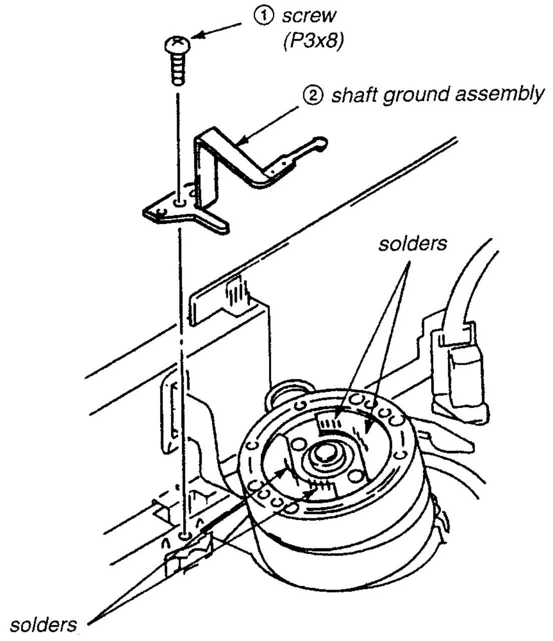

① screw (P3x8)
② shaft ground assembly
solders
solders

Fig. 2.

Note: When inserting the rotary upper drum assembly into the lower drum, be careful not to blur the contacting surface with fingerprint or like.

2) If it is difficult, mount the upper drum by shaking it gradually.
Note: Be careful not to damage the head. Make sure that the upper drum is tightly inserted.
3) Tighten two screws ③ (PSW 3x8).
Note: Temporary tighten two screws, After making sure that upper drum is tightly inserted, tighten the screws.

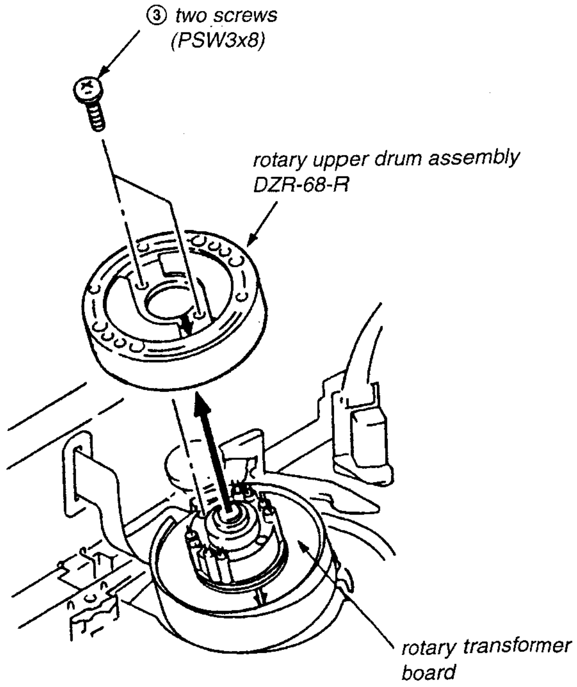

③ two screws (PSW3x8)
rotary upper drum assembly DZR-68-R
rotary transformer board

Fig. 3.

4) Solder 16 points on the rotary upper drum board. (See Fig. 2.)

5) Fix the shaft ground assembly ② using the screw ① (P3x8) so that the protrusion of the shaft ground assembly end contacts the center of the drum shaft, (See Fig. 2.)

Note: When attaching the shaft ground assembly, be careful not to apply force to the spring section of it.

6) Tighten the screw ① (P3x8).

3. PERIODIC CHECK AND REPLACEMENT

(Refer to the VHS MECHANICAL ADJUSTMENT IV (H MECHA) MANUAL.)

In order to obtain the best perfotmance from this unit and make full use of its capabilities, and to extend the life of the unit and tapes, it is recommended that the following periodic checks and maintenance be performed.

- The following must be done after every repair regardless of how many hours the user has operated the machine.

3-1. CLEANING OF ROTATING HEAD DISK ASSEMBLY

1) Press a chamois cloth (Jig Ref. No. J-9) which has been dipped in cleaning fludi (Jig Ref. No. J-8) lightly against the rotating drum assembly, then do the cleaning by slowly rotating the rotating head disk by hand. (Never try to clean by using the motor to turn it.)

2) Never try to clean by moving the chamois cloth at a vertical angle to the head tip. There is a very great danger of damaging the head tip if this is done.

3-2. CLEANING OF THE TAPE MOVEMENT SYSTEM

1) Clean the surfaces which the tape contacts during its movement (tape guide, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth that has been dipped in cleaning fluid.

3-3. CLEANING THE DRIVE SYSTEM

1) Clean the driving parts with a cloth that been dipped in cleaning fluid.

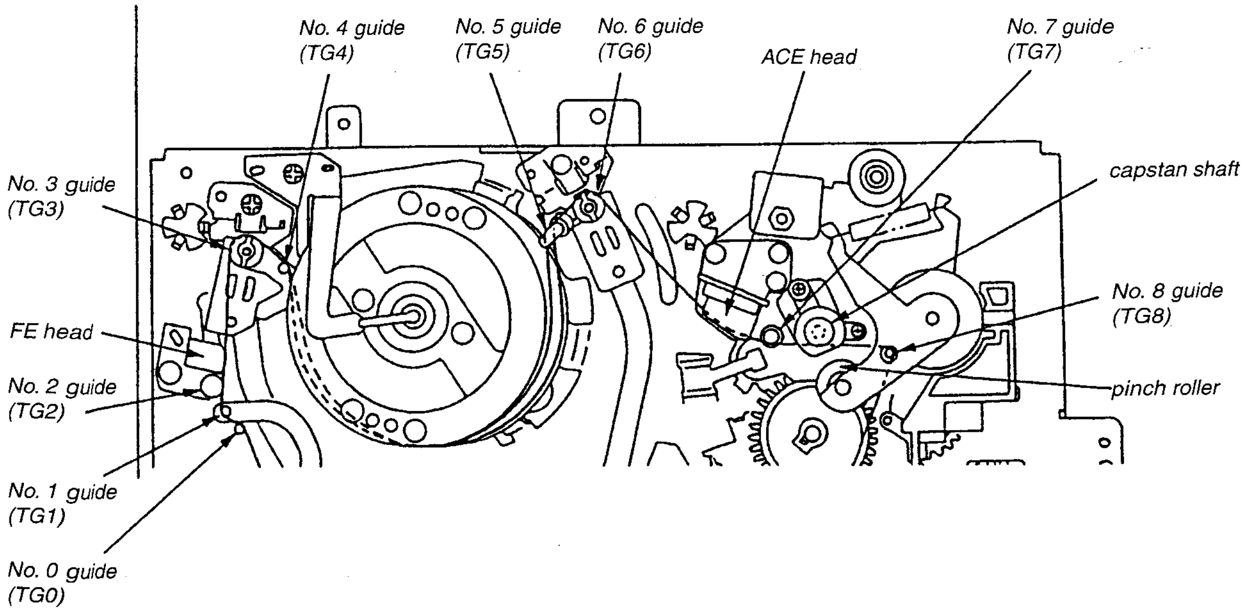
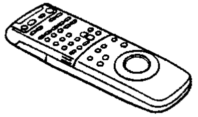


Fig. 4. Parts requiring cleaning

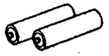
Step 1 Unpacking

Check that you have received the following items with the unit:

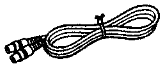
- **Remote commander**



- **R6 (size AA) batteries**



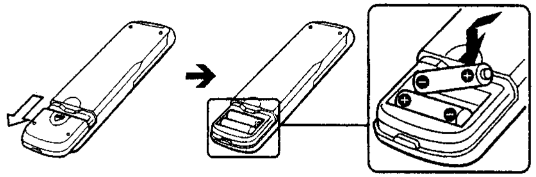
- **Aerial cable**



Step 2 Setting up the remote commander

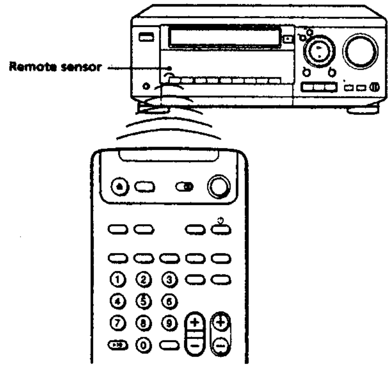
Inserting the batteries

Insert two R6 (size AA) batteries matching the + and – on the batteries to the diagram inside the battery compartment.



Using the remote commander

You can use this remote commander to operate this unit, a TV, other VCRs, an LD deck, CD player, tuner, cassette deck, and MD deck (all equipment must be made by Sony).
For details on how to operate other equipment with this remote commander, see "Audio/Video Equipment Operations" from page 44.



Notes

- The remote commander is initially set to control this unit. However, if it doesn't control the unit, press VHS TUNER first. If the remote commander still doesn't operate, read "Controlling VCRs" on page 47 first.
- With normal use, the batteries should last about three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

SECTION 1
GENERAL

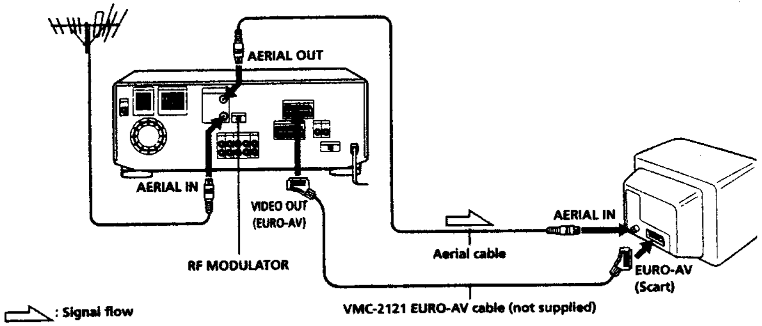
SLV-AV100B/NP/UX/VC

This section is extracted from SLV-AV100UX instruction manual.

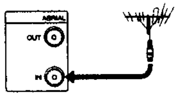
Step 3 Connecting the unit and TV

Before you connect...

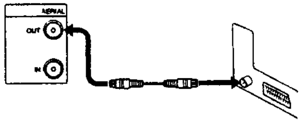
- Turn off the power on the TV.
- Do not connect the mains lead until you finish all the connections through "Step 5 : Connecting various audio/video equipment" on page 10.
- Be sure to make connections firmly to avoid hum and noise.


AERIAL OUT
AERIAL IN
VIDEO OUT (EURO-AV)
RF MODULATOR
AERIAL IN
Aerial cable
EURO-AV (Scart)
VMC-2121 EURO-AV cable (not supplied)
: Signal flow

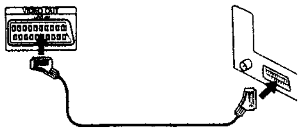
1 **Disconnect the aerial cable from your TV and connect it to AERIAL IN on the rear panel of the unit.**


AERIAL
OUT
IN

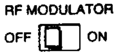
2 **Connect AERIAL OUT on the unit and the aerial input on your TV using the supplied aerial cable.**


AERIAL
OUT
IN

3 **Connect VIDEO OUT (EURO-AV) on the unit and the EURO-AV (Scart) connector on the TV.**



4


RF MODULATOR
OFF
ON

Set RF MODULATOR to OFF.

Whenever you want to watch the unit's VCR picture, press VHS TUNER to turn on the unit and TV. And the TV is automatically set to VCR reception.

If your TV doesn't have a EURO-AV (Scart) connector

To get the best possible picture from the unit, a EURO-AV connection is necessary. However, if your TV doesn't have a EURO-AV (Scart) connector, skip step 3 above and set RF MODULATOR to ON in step 4.

Note

- If you connect this unit to your TV with a EURO-AV (Scart) cable, you cannot reproduce sound from the unit unless you connect the speakers (see next page).

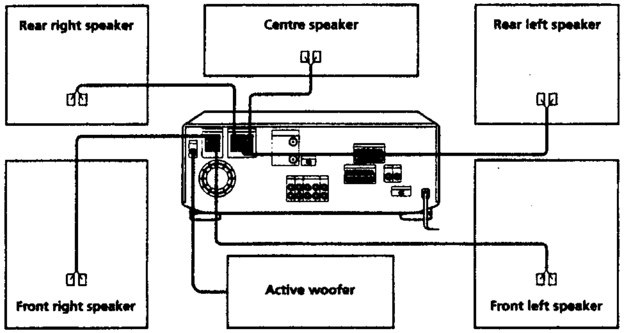
Step 4 Connecting speaker systems

To get the best possible sound from the unit, connect front (left and right), centre, and rear (left and right) speakers. You need to connect either the centre or rear speakers as well as the front speakers to enjoy Dolby Pro Logic Surround sound.

Before you connect...

- Prepare speaker cords (one for each speaker) (not supplied).

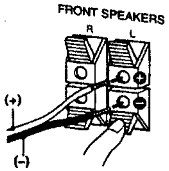
- Be sure to match the speaker cords to the appropriate terminals on the components: + to +, and – to –. (If the cords are reversed, the sound will be distorted and the bass sound will not be reproduced well.)
- Do not connect the mains lead until you finish all the connections through "Step 5 : Connecting various audio/video equipment" on page 10.
- Be sure to make connections firmly to avoid hum and noise.


Rear right speaker
Centre speaker
Rear left speaker
Front right speaker
Active woofer
Front left speaker

1

Connect the front speakers to the FRONT SPEAKERS L/R connectors.

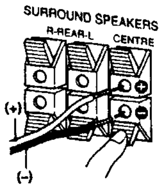
Twist about 15 mm of the stripped ends of the cord. Then insert the stripped ends into the connectors as shown on the right.


FRONT SPEAKERS
R
L
(+)
(–)

2

Connect the centre speaker to the SURROUND SPEAKERS CENTRE connectors.

Repeat step 1 above for the centre speaker.
If you don't have a centre speaker, skip this step.


SURROUND SPEAKERS
R-REAR-L
CENTRE
(+)
(–)

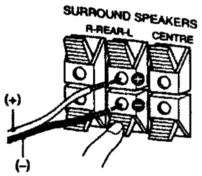
3

Connect the rear speakers to the SURROUND SPEAKERS REAR L/R connectors.

Repeat step 1 above for the surround speakers.
If you don't have rear speakers, skip this step.

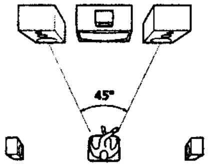
Note

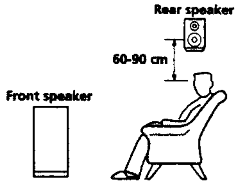
- Be sure to connect both left and right speakers. If you connect only one speaker, the rear speaker won't reproduce the sound.


SURROUND SPEAKERS
R-REAR-L
CENTRE
(+)
(–)

Placing the speakers

For optimum surround sound effect, place your speakers as shown below.



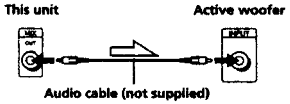

Rear speaker
60-90 cm
Front speaker

Tips

- Position the centre speaker so the face of the speaker is aligned evenly with, or slightly behind the faces of the front left and right speakers.
- Mount the surround (rear) left and right speakers on the walls so they face each other.
- Position the front left and right speakers and centre speaker as close to the same height as possible.

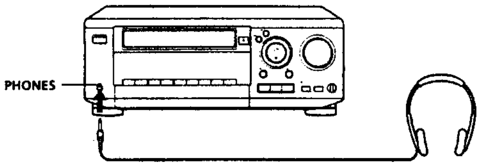
Connecting an active woofer

For further sound improvement, connect an active woofer to MIX OUT with an audio cable (not supplied). The active woofer will increase bass response. The position of the active woofer does not affect the sound quality very much.


This unit
Active woofer
Audio cable (not supplied)

Listening through the headphones

Connect the headphones to PHONES. No sound will be reproduced from the speakers.

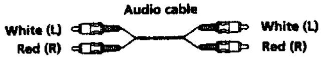


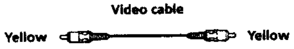
Step 5 Connecting various audio/video equipment

The following connections with various audio/video equipment are recommended examples. The actual connections may vary depending on the equipment you have.

Before you connect....

- Prepare audio and video cables (not supplied), and a EURO-AV cable (not supplied) referring to the following table.

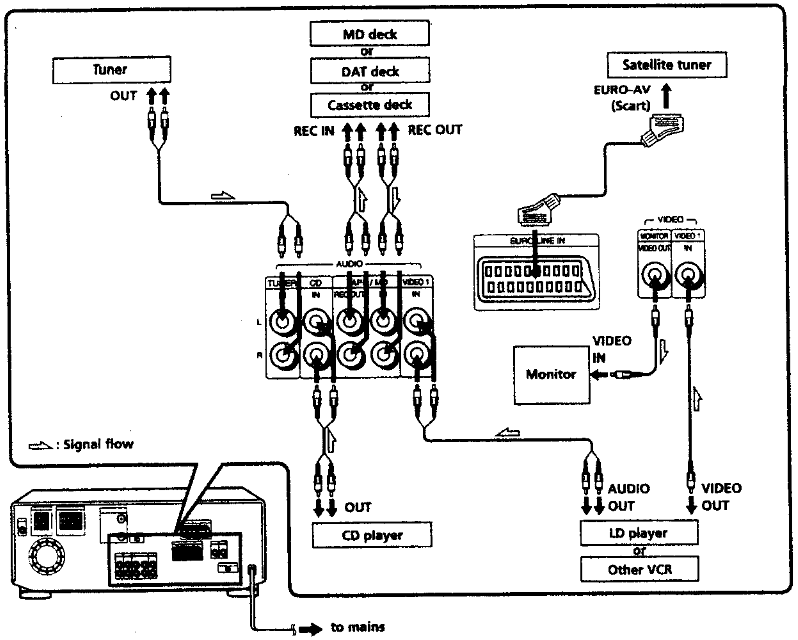

Audio cable
White (L)
Red (R)
White (L)
Red (R)


Video cable
Yellow
Yellow

VMC-2121 EURO-AV cable

Equipment	Necessary cable for each piece of equipment
Tuner/CD player	One audio cable
MD deck/DAT deck/cassette deck	Two audio cables
LD player/other VCR	One video cable and one audio cable
Monitor	One video cable
Satellite tuner	One EURO-AV cable

- Turn off the power to all equipment before making any connections.
- Do not connect the mains lead until all of the connections are complete.
- Be sure to make connections firmly to avoid hum and noise.


Tuner
OUT
MD deck
or
DAT deck
or
Cassette deck
REC IN
REC OUT
Satellite tuner
EURO-AV
(Scart)
VIDEO
AUDIO
TUNER
CD
IN
TAPE/MD
REC OUT
VIDEO 1
IN
L
R
EURO LINE IN
MONITOR VIDEO OUT
VIDEO 1 IN
VIDEO IN
Monitor
: Signal flow
OUT
CD player
AUDIO OUT
VIDEO OUT
LD player
or
Other VCR
to mains

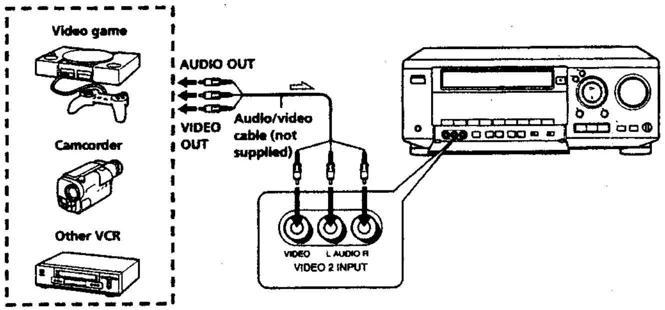
1 **Connect your audio/video equipment using audio and video cables, and a EURO-AV cable referring to the illustration above.**

Make sure you connect the audio and video cable plugs to jacks of the same colour.

2 **Connect the mains lead to the mains.**

continued

Connecting to the front VIDEO 2 INPUT jacks



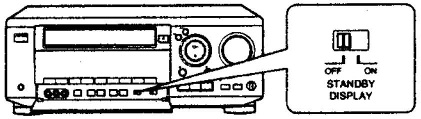
⇨ : Signal flow

Notes

- Make sure you connect the audio/video plugs to jacks of the same colour.
- If the other VCR is a monaural type, connect only the VIDEO and AUDIO L jacks.

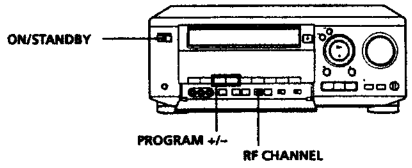
Conserving power while the unit is standing by

Set STANDBY DISPLAY to OFF. The indicators in the display window turn off while the unit is standing by to conserve power. When you set a timer recording, the indicators in the display window remain on even if STANDBY DISPLAY is set to OFF.



Step 6 Tuning your TV to the unit's VCR

If you connected the unit to your TV using a EURO-AV cable, skip this step.



1 ON/STANDBY

Press ON/STANDBY to turn on the unit.

2 RF CHANNEL

Press RF CHANNEL on the unit.

The factory-preset RF channel appears in the display window.
The unit's VCR signal is output through this channel to the TV.

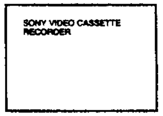
3

Turn on your TV and select a programme position for the unit's VCR picture.

4

Tune the TV's programme position to the RF channel shown in the display window so the picture on the right appears on the TV screen.

Refer to your TV manual for tuning instructions.
If the picture does not appear clearly, see "To obtain a clear picture from the unit's VCR" below.



5 RF CHANNEL

Press RF CHANNEL.

You have now tuned your TV to the unit's VCR. Whenever you want to play a video tape, set the TV to this programme position. This programme position will now be referred to as the VCR's programme position.

To check that the TV tuning is correct

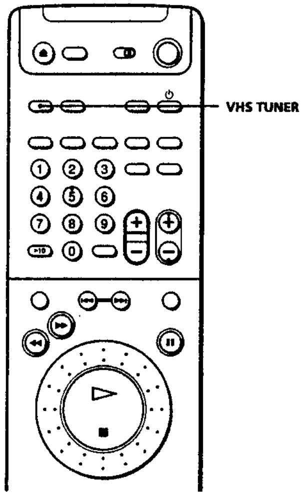
Set the TV to the VCR's programme position and press PROGRAM +/– on the unit. If the TV screen changes to a different programme each time you press PROGRAM +/–, the TV tuning is correct.

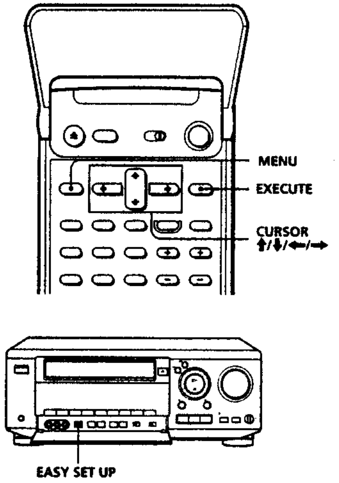
To obtain a clear picture from the unit's VCR

If the picture does not appear clearly in step 4 above, press PROGRAM +/– in step 4, to select another RF channel. Then tune the TV's programme position to the new RF channel until a clear picture appears.

Step 7 Setting up the unit with EASY SET UP

Before using the unit for the first time, set up the unit using the EASY SET UP function. With this function, you can set TV channels, guide channels for VIDEO Plus+, the clock, the centre mode for the PROLOGIC and THEATRE sound fields, and the relative volume level of the centre and rear speakers for the PROLOGIC sound field by following the instructions on the TV screen. (For sound field explanations, see page 61.)





1 VHS TUNER

Press VHS TUNER to turn on the unit and TV.

If the TV doesn't turn on, turn it on manually.
Press VHS TUNER again if connected with a EURO-AV (Scart) cable.

2

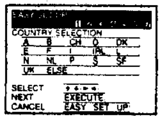
Set the TV for VCR reception.

- If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception and "VTR" appears in the display window.
- If connected with only the antenna cable, set the TV to the VCR's programme position manually.

3 EASY SET UP

Press EASY SET UP on the unit.

The country abbreviations for ITP (Intelligent Tuner Preset) appear.
To cancel the EASY SET UP function, press EASY SET UP again.



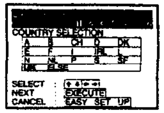
COUNTRY SELECTION

A B CH D DK
E F I IRL L
N NL P S SF
UK ELSE

SELECT : ↑↓←→
NEXT : EXECUTE
CANCEL : EASY SET UP

4 CURSOR

Lift the top cover of the remote commander.
Press CURSOR ↑/↓/←/→ to highlight the abbreviation for your country.



COUNTRY SELECTION

A B CH D DK
E F I IRL L
N NL P S SF
UK ELSE

SELECT : ↑↓←→
NEXT : EXECUTE
CANCEL : EASY SET UP

The abbreviations for the countries are as follows:

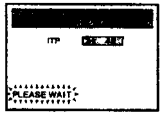
A: Austria	L: Luxembourg
B: Belgium	N: Norway
CH: Switzerland	NL: Netherlands
D: Germany	P: Portugal
DK: Denmark	S: Sweden
E: Spain	SF: Finland
F: France	UK: United Kingdom
I: Italy	ELSE: other countries
IRL: Ireland	

If your country is not listed, select ELSE.

5 EXECUTE

Press EXECUTE.

ITP starts searching for all the receivable channels.
ITP sorts the located channels appropriately for the selected country and presets them to the programme positions.
Some VIDEO Plus+ guide channels and station names may also be preset if ITP can detect them.



ITP

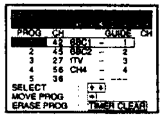
PLEASE WAIT

During presetting, the located channels are displayed on the TV screen. When all the channels are preset, the following screen appears.

6 CURSOR

Use CURSOR ↑/↓/←/→ to set the station names and VIDEO Plus+ guide channels that could not be preset automatically, change the programme positions of the stations, and disable the unused programme positions. (If all the settings are correct, skip this step.)

The setting procedures are the same as those described in "Manual setup — Selecting station names/setting up VIDEO Plus+" on page 22 and "Manual setup — Changing/disabling programme positions" on page 26.



```
PROG  CH        GUIDE  CH
  1   42  BBC1  -    1
  2   45  BBC2  -    2
  3   27  ITV   -    3
  4   56  CH4   -    4
  5   36        -  ---
SELECT     : ↑↓
MOVE PROG  : →
ERASE PROG : TIMER CLEAR
```

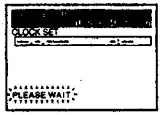
continued

Step 7 Setting up the unit with EASY SET UP (continued)

7 EXECUTE

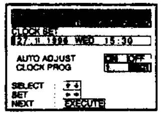
Press EXECUTE.

Auto Clock Set starts searching for a TV station that carries the time signal, and sets the clock time automatically. The date is also set if the TV station transmits date data.


CLOCK SET

PLEASE WAIT

When the clock setting is complete, the following screen appears.
If the unit's VCR does not receive the time signal from any station, "1.1. 1996 MON 0:00" appears and AUTO ADJUST is set to OFF.


CLOCK SET
27. 11 1996 WED 15:30

AUTO ADJUST ON OFF
CLOCK PROG

SELECT : ↑↓
SET : ←→
NEXT : EXECUTE

8 CURSOR

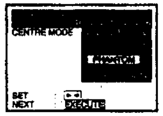
If the clock setting is not correct, adjust the date and time manually or change the station for Auto Clock Set using CURSOR ↑/↓/←/→.

The setting procedures are the same as those described in "Manual setup — Setting the clock" on page 29.

9 EXECUTE

Press EXECUTE.

The CENTRE MODE selection menu appears.


CENTRE MODE

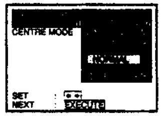
PHANTOM

SET : ←→
NEXT : EXECUTE

10 CURSOR

Press ←/→ to select the centre mode.

See "Selecting the centre mode" on page 18 for details.


CENTRE MODE

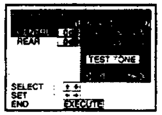
NORMAL

SET : ←→
NEXT : EXECUTE

11 EXECUTE

Press EXECUTE.

Each speaker emits the test tone in turn (the speaker emitting the test tone is indicated by the red speaker mark). Check each speaker's relative volume balance with the test tones.


CENTRE
REAR

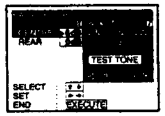
TEST TONE

SELECT : ↑↓
SET : ←→
END : EXECUTE

12 CURSOR

Press CURSOR ↑/↓ to move the cursor (I) to CENTRE. Then, press CURSOR ←/→ to increase or decrease the volume of the centre speaker so you have an equal volume balance with the other speakers at your listening position.

If you selected PHANTOM in step 11, skip this step.
This volume adjustment affects only the PROLOGIC sound field.


CENTRE
REAR

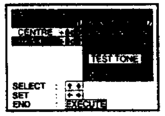
TEST TONE

SELECT : ↑↓
SET : ←→
END : EXECUTE

13 CURSOR

Press CURSOR ↑/↓ to move the cursor (I) to REAR. Then, press CURSOR ←/→ to increase or decrease the volume of the rear speakers so you have an equal volume balance with the other speakers at your listening position.

If you selected 3CH LOGIC in step 11, skip this step.
The surround speakers' volume balance is always even.
This volume adjustment affects only the PROLOGIC sound field.


CENTRE
REAR

TEST TONE

SELECT : ↑↓
SET : ←→
END : EXECUTE

14 EXECUTE

Press EXECUTE.

A programme position appears on the TV screen.

Tips

- To adjust the relative volume balance between the front left and right speakers, use BALANCE L/R on the unit.
- If you change the speaker configuration, reset the modes. See "Reconfiguring the PROLOGIC and THEATRE sound fields" on page 68.
- If you need to further increase the volume of the rear speakers from the maximum level (+10 dB), see "Increasing the maximum rear speaker level" on page 69.

Note

- Do not exit EASY SET UP while ITP is presetting channels. If you do, repeat EASY SET UP from the beginning.

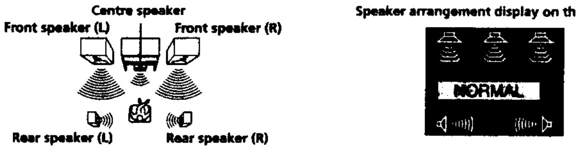
continued

Selecting the centre mode

The centre mode is related to the PROLOGIC and THEATRE sound fields. (See "Taking advantage of the sound fields" on page 61 for a detailed explanation on sound fields.) You must have rear left and right speakers, or one centre speaker other than the front left and right speakers for these sound fields.
You can select NORMAL, WIDE, PHANTOM, or 3CH LOGIC as the centre mode. Each mode is designed for a different speaker configuration. Select the most suitable mode considering the following conditions:

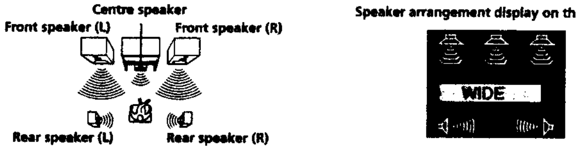
If you have front and rear speakers, and a small centre speaker

Select NORMAL. The centre channel bass sound is output from the front speakers. This is because small centre speakers cannot reproduce bass sound sufficiently.


Centre speaker
Front speaker (L)
Front speaker (R)
Rear speaker (L)
Rear speaker (R)
Speaker arrangement display on the TV screen
NORMAL

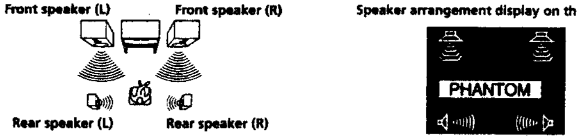
If you have front and rear speakers, and a large centre speaker

Select WIDE. The combination of this speaker configuration and mode selection is ideal for Dolby Pro Logic Surround sound.


Centre speaker
Front speaker (L)
Front speaker (R)
Rear speaker (L)
Rear speaker (R)
Speaker arrangement display on the TV screen
WIDE

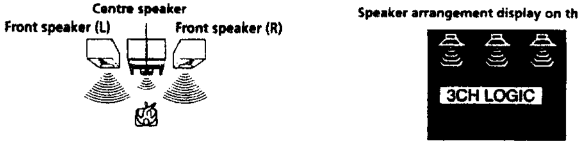
If you have only front and rear speakers

Select PHANTOM. The centre channel sound is output from the front speakers.

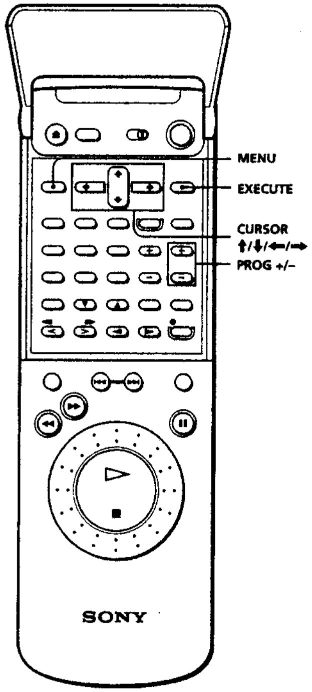

Front speaker (L)
Front speaker (R)
Rear speaker (L)
Rear speaker (R)
Speaker arrangement display on the TV screen
PHANTOM

If you have only front and centre speakers

Select 3CH LOGIC (3 Channel Logic). The rear channel sound is output from the front speakers. You can enjoy some surround sound atmosphere, even if you don't have surround (rear) speakers.


Centre speaker
Front speaker (L)
Front speaker (R)
Speaker arrangement display on the TV screen
3CH LOGIC

Manual setup — Presetting channels


MENU
EXECUTE
CURSOR
↑/↓/←/→
PROG +/-
SONY

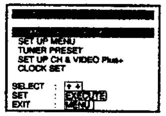
Note
- The menu disappears automatically if you don't proceed within a few minutes.

If some channels could not be preset using EASY SET UP, you can preset them manually.

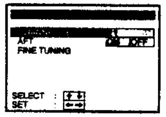
Before you start...
- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually.
    Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.

1 Lift the top cover of the remote commander.

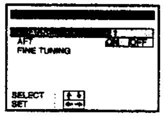
Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.


SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET
SELECT : ↑↓
SET : EXECUTE
EXIT : MENU

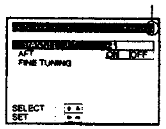
2 Press CURSOR ↑/↓ to move the cursor (▮) to TUNER PRESET and press EXECUTE.


AFT
ON OFF
FINE TUNING
SELECT : ↑↓
SET : ←→

3 Press CURSOR ↑/↓ to move the cursor (▮) to CHANNEL SET.


AFT
ON OFF
FINE TUNING
SELECT : ↑↓
SET : ←→

4 Press PROG +/– to select the programme position.

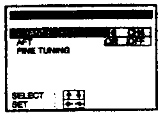

Selected programme position
AFT
ON OFF
FINE TUNING
SELECT : ↑↓
SET : ←→

continued

Manual setup — Presetting channels (continued)

5 Press CURSOR → (or ← for reverse search) to start tuning.

The unit's VCR starts searching for a channel and displays the first one it finds on the TV screen. Press CURSOR ←/→ repeatedly until the channel you want is displayed.



The channels are scanned from UHF E21 through E69.

If you know the number of the channel you want, press the programme number buttons. For example, for channel 43, first press "4," then press "3."

6 To allocate another channel to another programme position, repeat steps 4 and 5.

7 Press EXECUTE.

Disabling unwanted programme positions

After tuning the TV channels, you can disable unused programme positions. The disabled positions will be skipped later when you press the PROG +/– buttons to select a station. You can also disable unwanted programme positions using the SET UP CH & VIDEO Plus+ menu (page 27).

1 In step 5 on the previous page, press number button "0" twice to display the number "0" beside CHANNEL SET.

2 Press EXECUTE.

If the picture is not clear

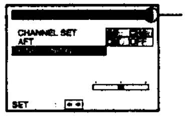
Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture is not clear, you can also use the manual tuning function.

1 Press PROG +/– to select the programme position for which you cannot obtain a clear picture.

2 Press MENU, then select VHS MENU and press EXECUTE.

3 Select TUNER PRESET and press EXECUTE.

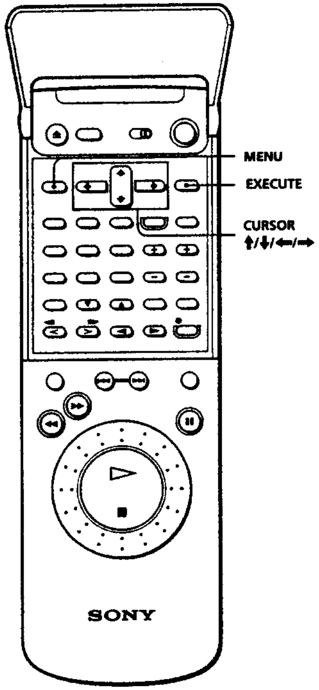
4 Select FINE TUNING. The fine tuning meter appears.



5 Press CURSOR ←/→ to get a clearer picture, then press EXECUTE.

Note that the AFT (Auto Fine Tuning) setting switches to OFF.

Manual setup — Selecting station names/setting up VIDEO Plus+



Notes

- The menu disappears automatically if you don't proceed within a few minutes.
- If you entered an incorrect guide channel number, press CURSOR ↑/↓ repeatedly to reset the "GUIDE CH" column to "—." "—" appears after "255" (then "1" appears).
- The unit does not allow you to enter guide channel numbers that have already been set.

VIDEO Plus+ is a feature in Sony VCRs that simplifies programming i unit's VCR to make timer recordings. To use VIDEO Plus+, each programme position needs to match its VIDEO Plus+ guide channel. the guide channels were not preset in the EASY SET UP procedure, se them by selecting the station names. If you cannot find the station nai you want, you need to set the guide channel manually. To find the guide channel numbers, see "Guide channels for VIDEO Plus+" on pa 24, or look in the programme guide for your area that features PlusCode.

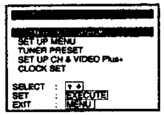
- If you want to record satellite broadcasts using VIDEO Plus+, see pa 25.

Before you start...

- Press VHS TUNER.
  - – If the TV doesn't turn on, turn it on manually. Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - – If connected with a EURO-AV (Scart) cable, the TV is automaticall set to VCR reception.
  - – If connected with only the antenna cable, set the TV to the VCR's programme position manually.

1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.



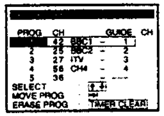
```
SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET

SELECT  : ↑↓
SET     : EXECUTE
EXIT    : MENU
```

2 Press CURSOR ↑/↓ to move the cursor (▮) to SET UP CH & VIDE(Plus+ and press EXECUTE.

When using the EASY SET UP procedure, skip this step.

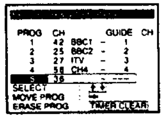
The preset channels are displayed on the screen. The station name and guide channels also appear if the unit's VCR detected them in EASY SET UP. "—" in the GUIDE CH column means that the guic channel has not been preset.



```
PROG  CH        GUIDE  CH
      42  BBC1  -   1
  2   25  BBC2  -   2
  3   27  ITV   -   3
  4   56  CH4   -   4
  5   36        -  ---
SELECT         : ↑↓
MOVE PROG      : →
ERASE PROG     : TIMER CLEAR
```

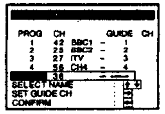
3 Press CURSOR ↑/↓ to move the cursor (▮) to the row on which yc want to set the station name and guide channel.

To display other pages for programme positions 6 to 60, press CURSOR ↑/↓ repeatedly.



```
PROG  CH        GUIDE  CH
  1   42  BBC1  -   1
  2   25  BBC2  -   2
  3   27  ITV   -   3
  4   56  CH4   -   4
  5   36        -  ---
SELECT         : ↑↓
MOVE PROG      : →
ERASE PROG     : TIMER CLEAR
```

4 Press CURSOR → twice to highlight the station name and guide channel columns only.

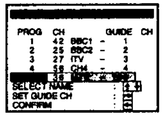


```
PROG  CH        GUIDE  CH
  1   42  BBC1  -   1
  2   25  BBC2  -   2
  3   27  ITV   -   3
  4   56  CH4   -   4
      36        -  ---
SELECT NAME          : ↑↓
SET GUIDE CH         : →
CONFIRM              : ←
```

5 Press CURSOR ↑/↓ to select the station name.

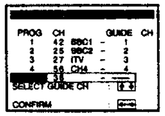
The corresponding guide channel number is set automatically.

- If you can set the station name and guide channel this way, press CURSOR ← to confirm the setting and skip steps 6 through 8.
- If you cannot find the station name you want to set, go on to the next step.



```
PROG  CH        GUIDE  CH
  1   42  BBC1  -   1
  2   25  BBC2  -   2
  3   27  ITV   -   3
  4   56  CH4   -   4
      36  [illegible]
SELECT NAME          : ↑↓
SET GUIDE CH         : →
CONFIRM              : ←
```

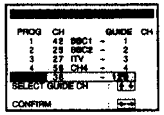
6 Press CURSOR → to highlight the guide channel column only.



```
PROG  CH        GUIDE  CH
  1   42  BBC1  -   1
  2   25  BBC2  -   2
  3   27  ITV   -   3
  4   56  CH4   -   4
      36        -  ---
SELECT GUIDE CH    : ↑↓

CONFIRM            : ←→
```

7 Press CURSOR ↑/↓ to select the guide channel number assigned in the programme guide.

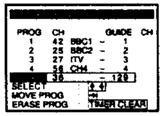


```
PROG  CH        GUIDE  CH
  1   42  BBC1  -   1
  2   25  BBC2  -   2
  3   27  ITV   -   3
  4   56  CH4   -   4
      36        -  [illegible]
SELECT GUIDE CH    : ↑↓

CONFIRM            : ←→
```

8 Press CURSOR ←/→ to confirm the setting.

The cursor (▮) appears in the leftmost column.



```
PROG  CH        GUIDE  CH
  1   42  BBC1  -   1
  2   25  BBC2  -   2
  3   27  ITV   -   3
  4   56  CH4   -   4
      36        -  129
SELECT         : ↑↓
MOVE PROG      : →
ERASE PROG     : TIMER CLEAR
```

9 To set the station name and guide channel of another station, repeat steps 3 through 8.

If you want to change the programme positions of the stations, proceed to step 3 of "Manual setup — Changing/disabling programme positions" on page 26.

10 Press EXECUTE.

continued

Manual setup — Selecting station names/setting up VIDEO Plus+ (continued)

Guide channels for VIDEO Plus+

Guide channel	Station name
001	BBC1
002	BBC2
003	ITV
004	CHANNEL 4
005	RTE (IRELAND)
006	NETWORK 2 (IRELAND)
101	SKY ONE
102	SKY NEWS
103	SKY MOVIES
104	THE MOVIE CHANNEL
105	SKY SPORT
106	NICKELODEON
	VH-1 GERMANY
107	EUROSPORT
108	GALAVISION
109	MTV EUROPE
110	CHILDREN'S CHANNEL
	THE FAMILY CHANNEL
111	SKY MOVIES GOLD
112	BBC WORLD SERVICE
113	RTL 4
114	SUPER SPORT
	FILMNET 2
	FILMNET +
115	RTL PLUS INTERNATIONAL
116	SAT 1
117	PREMIERE
118	3 SAT
119	ARD
120	PRO 7
121	TELE 5
122	TELECLUB
123	UK GOLD
124	DISCOVERY
	THE LEARNING CHANNEL
125	BRAVO
	ADULT CHANNEL
126	CNN
127	EURONEWS
129	QVC
130	UK LIVING
131	RAI 1
132	RAI 2
133	TV5 EUROPE
134	TVE INTERNATIONAL
135	MBC/ARABIC
136	VTM
137	SPORTNET
138	COUNTRY MUSIC TV
139	VIDEO HITS ONE
	VH-1
140	SKY SPORT 2 & SOAPS & TRAVEL
141	TV ASIA
142	LA-5
143	LIVE TV
144	SUPERCHANNEL
145	JAPAN TV
146	SELECT TV
147	MOVIE CHANNEL
	FILMNET 1
149	TNT
	CARTOON NETWORK

Note

- The guide channel codes listed above are as of 11 September 1995. If you have any questions about the guide channels, please consult your nearest Sony service facility or the marketing group of Sony UK.

Notes

- If you use a satellite tuner connected via the EURO LINE (Scart) connector, you don't have to set up VIDEO Plus+. Just record a satellite programme using VIDEO Plus+, and the unit's VCR automatically records the programme from the EURO LINE IN connector.
- When you record a satellite broadcast using VIDEO Plus+, you need to select the desired channel on the satellite tuner manually.

Setting up VIDEO Plus+ for satellite broadcasts

If your satellite tuner is connected via the AERIAL IN connector, you must first set the programme position for each satellite channel using the TUNER PRESET menu. Then, set the guide channel number for each satellite channel using the SET UP CH & VIDEO Plus+ menu.
If your satellite tuner is connected via the LINE jacks, you don't have to set programme positions and guide channel numbers for satellite channels, and can skip the following operations.

1 Turn on the satellite tuner.

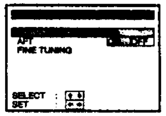
2 Press MENU. Then select VHS MENU, and press EXECUTE.

3 Select TUNER PRESET and press EXECUTE.

4 Press PROG +/– to select a programme position you want to use for watching a satellite channel.

5 Select CHANNEL SET, then press CURSOR ➡ to tune the unit's VCR to the satellite tuner.

The channel number displayed beside CHANNEL SET is used for receiving all satellite broadcasts from the satellite tuner.

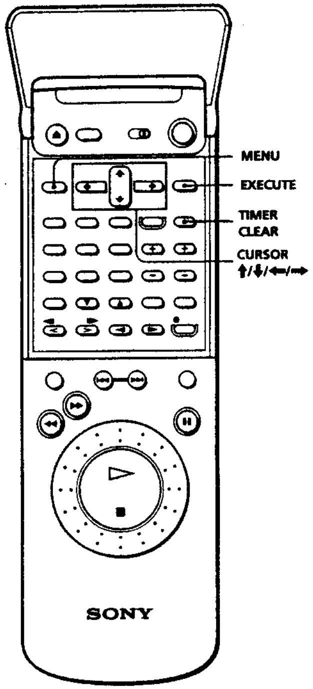


6 Press PROG +/– to select another programme position for another satellite channel, and press the programme number buttons to enter the same channel number as the one displayed in step 5.

Repeat this step for all satellite channels.

7 Set the guide channel number for each programme position assigned to the satellite channel, following the procedures in "Manual setup – Selecting station names/setting up VIDEO Plus+" on page 22.

Manual setup — Changing/disabling programme positions



After setting the channels and VIDEO Plus+ guide channels, you can change the programme positions as you like. If any programme positions are unused or contain unwanted channels, you can disable them.

Before you start...

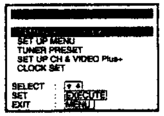
- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually. Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.

Changing programme positions

e.g. Moving the programme position from 3 to 1.

1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

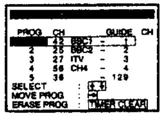


```
SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET

SELECT  : ↑↓
SET     : EXECUTE
EXIT    : MENU
```

2 Press CURSOR ↑/↓ to move the cursor (▮) to SET UP CH & VIDEO Plus+ and press EXECUTE.

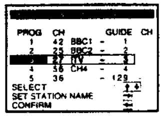
When using the EASY SET UP procedure, skip this step.



```
PROG  CH          GUIDE  CH
      42  BBC1  -    1
  2   25  BBC2  -    2
  3   27  ITV   -    3
  4   56  CH4   -    4
  5   36        -  129
SELECT     : ↑↓
MOVE PROG  : →
ERASE PROG : TIMER CLEAR
```

3 Press CURSOR ↑/↓ to move the cursor (▮) to the row on which you want to change the programme position, then press CURSOR →.

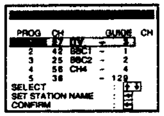
To display other pages for programme positions 6 to 60, press CURSOR ↑/↓ repeatedly.



```
PROG  CH          GUIDE  CH
  1   42  BBC1  -    1
  2   25  BBC2  -    2
      27  ITV   -    3
  4   56  CH4   -    4
  5   36        -  129
SELECT              ↑↓
SET STATION NAME    →
CONFIRM             ←
```

4 Press CURSOR ↑/↓ until the selected channel and guide channel row moves to the desired programme position.

The selected channel and guide channel are inserted at the new programme position and the intermediate channels are displaced to fill the gap.



```
PROG  CH          GUIDE  CH
      27  ITV   -    3
  2   42  BBC1  -    1
  3   25  BBC2  -    2
  4   56  CH4   -    4
  5   36        -  129
SELECT           : ↑↓
SET STATION NAME : →
CONFIRM          : ←
```

5 Press CURSOR ← to confirm the setting.

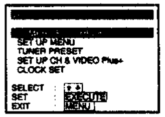
6 To change the programme position of another station, repeat steps 3 through 5.

7 Press EXECUTE.

Disabling unwanted programme positions

1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

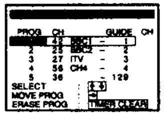


```
SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET

SELECT  : ↑↓
SET     : EXECUTE
EXIT    : MENU
```

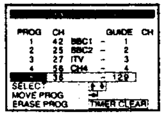
2 Press CURSOR ↑/↓ to move the cursor (▮) to SET UP CH & VIDEO Plus+ and press EXECUTE.

When using the EASY SET UP procedure, skip this step.



```
PROG  CH          GUIDE  CH
      42  BBC1  -    1
  2   25  BBC2  -    2
  3   27  ITV   -    3
  4   56  CH4   -    4
  5   36        -  129
SELECT     : ↑↓
MOVE PROG  : →
ERASE PROG : TIMER CLEAR
```

3 Press CURSOR ↑/↓ to move the cursor (▮) to the row you want to disable.



```
PROG  CH          GUIDE  CH
  1   42  BBC1  -    1
  2   25  BBC2  -    2
  3   27  ITV   -    3
  4   56  CH4   -    4
      36        -  129
SELECT       ↑↓
MOVE PROG    →
ERASE PROG   TIMER CLEAR
```

Note

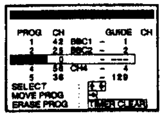
- Be sure to select the correct programme position you want to disable. If you disable a programme position by mistake, you have to reset that channel manually.

continued

Manual setup — Changing/disabling programme positions (continued)

4 Press TIMER CLEAR.

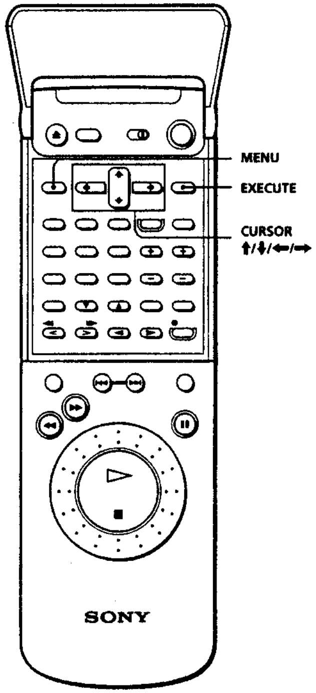
The selected row will be cleared as shown on the right.


PROG CH GUIDE CH
1 42 BBC1 – 1
2 25 BBC2 – 2
0 – ---
4 56 CH4 – 4
5 36 – 129
SELECT : ↑ ↓
MOVE PROG : ⇒
ERASE PROG : TIMER CLEAR

5 Repeat steps 3 and 4 for any other programme positions you want to disable.

6 Press EXECUTE.

Manual setup — Setting the clock


MENU
EXECUTE
CURSOR
↑/↓/←/→
SONY

Tip

- To change the digits during setting, press CURSOR ← to return to the item to be changed, and select the digits using CURSOR ↑/↓

Note

- The menu disappears automatically if you don't proceed within a few minutes.

You must set the time and date on the unit to be able to use the timer recording features. If the unit clock was not set in the EASY SET UP procedure, you need to set it manually.

If Auto Clock Set did not set the clock correctly for your local area, try another station for Auto Clock Set.

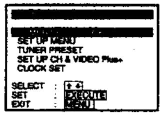
Before you start...

- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually. Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.

Setting the clock manually

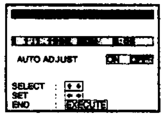
1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to VHS MENU, and press EXECUTE.

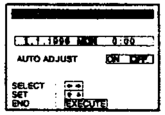

SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET
SELECT : ↑ ↓
SET : EXECUTE
EXIT : MENU

2 Press CURSOR ↑/↓ to move the cursor (▮) to CLOCK SET and press EXECUTE.

When using the EASY SET UP procedure, skip this step.

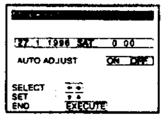

AUTO ADJUST ON OFF
SELECT : ↑ ↓
SET : ← →
END : EXECUTE

3 Press CURSOR → to highlight the date and the day of the week.


1.1.1996 MON 0:00
AUTO ADJUST ON OFF
SELECT : ← →
SET : ↑ ↓
END : EXECUTE

4 Press CURSOR ↑/↓ to set the date.

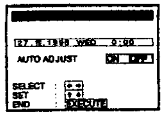
The day of the week is set automatically.


27.1.1996 SAT 0:00
AUTO ADJUST ON OFF
SELECT ← →
SET ↑ ↓
END EXECUTE

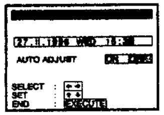
continued

Manual setup — Setting the clock (continued)

5 Press CURSOR ➡ to highlight the month, and set the month using CURSOR ⬆/⬇.

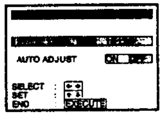

AUTO ADJUST
ON OFF
SELECT
SET
END
EXECUTE

6 Set the year, hour, and minutes in sequence using CURSOR ➡ to highlight the item to be set, and CURSOR ⬆/⬇ to select the digits.


AUTO ADJUST
ON OFF
SELECT
SET
END
EXECUTE

7 Press CURSOR ➡ to confirm the setting.

The cursor (▮) appears in the leftmost column.


AUTO ADJUST
ON OFF
SELECT
SET
END
EXECUTE

8 Press EXECUTE to start the clock.

Tip

- If you set AUTO ADJUST to ON, Auto Clock Set is activated whenever the unit is turned off. The date and time are adjusted automatically by referring to the time signal from the station whose programme position is displayed in the "CLOCK PROG" row.
  If you do not need Auto Clock Set, highlight OFF.

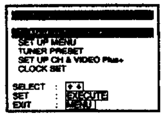
Note

- The menu disappears automatically if you don't proceed within a few minutes.

Changing the station for Auto Clock Set

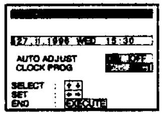
1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ⬆/⬇ to move the cursor (▮) to VHS MENU, and press EXECUTE.

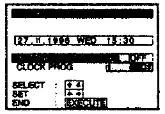

SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET
SELECT
SET
EXIT
EXECUTE
MENU

2 Press CURSOR ⬆/⬇ to move the cursor (▮) to CLOCK SET and press EXECUTE.

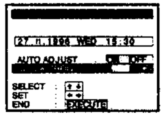
When using the EASY SET UP procedure, skip this step.


AUTO ADJUST
CLOCK PROG
ON OFF
SELECT
SET
END
EXECUTE

3 Press CURSOR ⬇ to move the cursor (▮) to AUTO ADJUST, then press CURSOR ⬅ to highlight ON.


CLOCK PROG
OFF
SELECT
SET
END
EXECUTE

4 Press CURSOR ⬇ to move the cursor (▮) to CLOCK PROG, then press CURSOR ⬅/➡ repeatedly until the programme position of the station that carries the time signal appears.

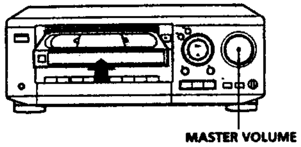

AUTO ADJUST
ON OFF
SELECT
SET
END
EXECUTE

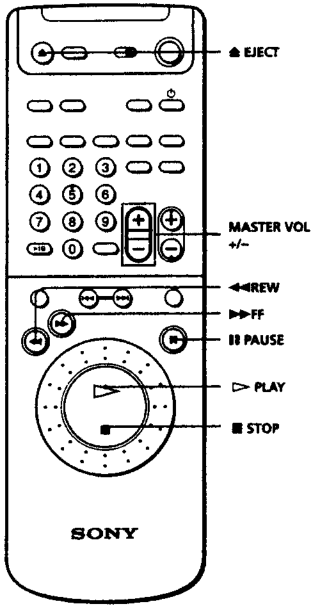
If the unit does not receive the time signal from any station, AUTO ADJUST returns to OFF automatically.

5 Press EXECUTE.

Basic VCR Operations

Playing a video tape





Tips

- The unit turns on if you insert a tape while the power is off.
- The counter resets to "0H00M00S" whenever a tape is inserted.

Notes

- The unit's sound won't be reproduced through the TV unless the speaker connectors or TAPE/MD REC OUT jacks are connected to the TV. Normally, the speakers connected to the unit reproduce the sound.

Before you start...

- Turn MASTER VOLUME to the leftmost position (0) to avoid damaging your speakers.

1 Press VHS TUNER.

- If the TV doesn't turn on, turn it on manually.
  Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
- If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
- If connected with only the antenna cable, set the TV to the VCR's programme position manually.

2 Insert a video tape.

The unit's VCR starts playing automatically if you insert a tape with its safety tab removed.

3 Press ▷ PLAY.

When the tape reaches the end, it will rewind automatically.

4 Press MASTER VOL +/– on the remote commander to adjust the volume.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	❚❚ PAUSE
Resume play after pause	❚❚ PAUSE or ▷ PLAY
Search forward	During playback, press and hold ▶▶ FF. To resume normal playback, release the button.
Search backward	During playback, press and hold ◀◀ REW. To resume normal playback, release the button.
Fast-forward the tape	▶▶ FF during stop
Rewind the tape	◀◀ REW during stop
Eject the tape	⏏ EJECT

To play an NTSC-recorded tape

Set NTSC PB on the rear of the unit according to the colour system of your TV.

When your TV is	Set NTSC PB to
PAL only	ON PAL TV
PAL and NTSC	NTSC 4.43

- Depending on your TV, the following may occur while playing an NTSC-recorded tape:
  - The picture is played back in black and white.
  - The picture shakes.
  - No picture appears on the TV screen.
  - Black horizontal streaks appear on the TV screen.
  - The colour density increases or decreases.
- If you play back a tape in LP or EP mode with the NTSC system, the sound is monaural.
- The counter stops counting when it comes to an unrecorded portion.

Note

- If the muting mark doesn't appear on the TV screen, press DISPLAY.

To use the time counter

At the point on the tape that you want to find later, press COUNTER RESET. The counter in the display window resets to "0H00M00S." To rewind or fast-forward to the "0H00M00S" point, press TAPE RETURN on the unit.

To display the time counter on the TV screen, press DISPLAY.

To change the information in the display window

Press STATUS repeatedly.

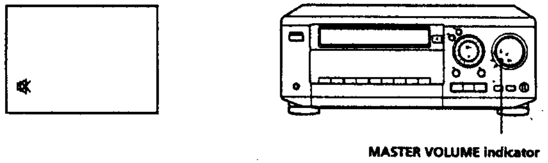
Each press changes the indication in the following way:

Current time → Counter → Operating function → Sound field
(See page 34 and 61.)

Regardless of the selected indication, the operational function and selected sound field appears in the display window momentarily. To display only the indication selected with the STATUS button, set INDICATION in the SET UP MENU to OFF (see page 76).

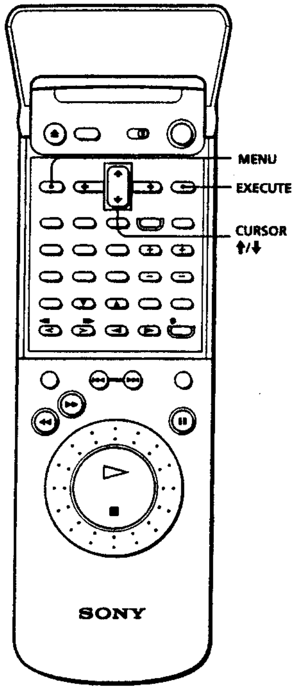
To mute the sound

Press MUTING on the remote commander or unit. The muting mark appears on the TV screen if the on-screen display function is on, and the MASTER VOLUME indicator on the unit flashes.



To restore the sound, press MUTING again.

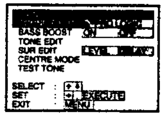
Using the pre-programmed sound fields


MENU
EXECUTE
CURSOR
↑/↓
SONY

You can enjoy the surround sound effect by simply selecting one of the pre-programmed sound fields according to the type of playback source.

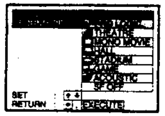
1 **Lift the top cover of the remote commander.**

While playing any source, press MENU. Then press CURSOR ↑/↓ to move the cursor (▸) to SOUND SET, and press EXECUTE.


BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
DELAY
CENTRE MODE
TEST TONE
SELECT : ↑ ↓
SET : ←, EXECUTE
EXIT : MENU

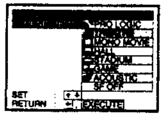
2 **Press CURSOR ↑/↓ to move the cursor (▸) to SOUND FIELD and press EXECUTE (or CURSOR →).**

The current sound field mark is highlighted.


PRO LOGIC
THEATRE
MONO MOVIE
HALL
STADIUM
GAME
ACOUSTIC
SF OFF
SET : ↑ ↓
RETURN : ←, EXECUTE

3 **Press CURSOR ↑/↓ to highlight the most suitable sound field for the playback source.**

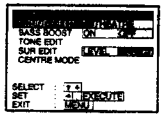
See "Taking advantage of the sound fields" on page 63 for details on selecting a suitable sound field.


PRO LOGIC
MONO MOVIE
HALL
STADIUM
GAME
ACOUSTIC
SF OFF
SET : ↑ ↓
RETURN : ←, EXECUTE

4 **Press EXECUTE (or CURSOR ←).**

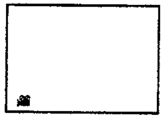
The customizing menu for the selected sound field appears.

If you want to customize the sound field, see "Customizing the sound fields" on page 66.

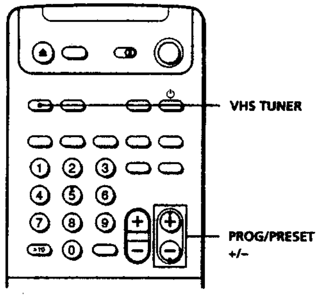

THEATRE
BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
CENTRE MODE
SELECT : ↑ ↓
SET : ←, EXECUTE
EXIT : MENU

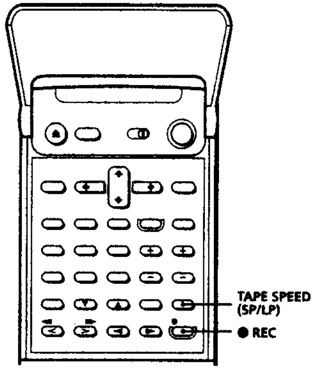
5 **Press MENU to return to the original screen.**

The selected sound field mark appears on the TV screen if the display function is on (see "To check the remaining tape length" on the next page).



Recording TV programmes


VHS TUNER
PROG/PRESET
+/–


TAPE SPEED
(SP/LP)
● REC

Tips

- To select a programme position, you can use the programme number buttons on the remote commander. For two-digit numbers, press the -/-- (tens digit) button followed by the programme number buttons.
- You can select a video source (e.g. a satellite tuner) connected to the EURO LINE IN connector by pressing VHS LINE, or PROG/PRESET +/– repeatedly, until "LINE" is displayed on the TV screen.

(continued)

1 **Press VHS TUNER.**

- If the TV doesn't turn on, turn it on manually.
  Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
- If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
- If connected with only the antenna cable, set the TV to the VCR's programme position manually.

2 **Insert a tape with its safety tab in place.**

3 **Press PROG/PRESET +/– to select the programme position you want to record.**

4 **Lift the top cover of the remote commander and press TAPE SPEED to select the tape speed, SP or LP.**

LP provides twice as much recording time as SP, however, SP produces better picture and audio quality.

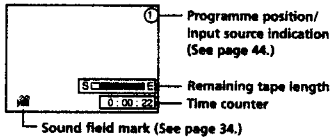
5 **Press ● REC to start recording.**

To stop recording

Press ■ STOP.

To check the remaining tape length

Press DISPLAY. The display function turns on. The white bar indicates the approximate length of tape remaining.


①
S E
0 : 00 : 22
Programme position/ Input source indication (See page 44.)
Remaining tape length
Time counter
Sound field mark (See page 34.)

To watch another TV programme while recording

1 Press TV CONTROL ON on the remote commander.
"VTR" in the display window disappears.

2 Select another programme position on the TV.

continued

Recording TV programmes (continued)

Tips (continued)

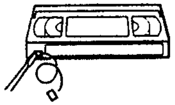
- Information about the tape appears on the TV screen, but the information won't be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV.
- You can enjoy watching or listening to another input source even while recording.

Notes

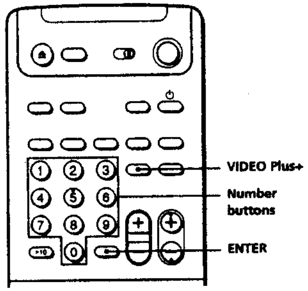
- The display does not appear during still (pause) mode or slow-motion playback.
- The display will not appear while playing an NTSC-recorded tape.
- If a tape has portions recorded in both PAL and NTSC systems, the time counter reading will not be correct. This discrepancy is due to the difference between the counting cycles of the two video systems.

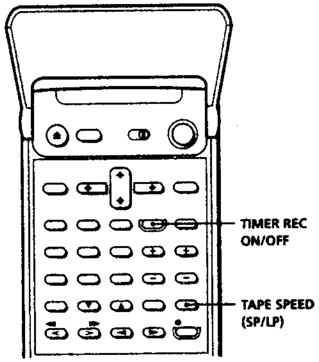
To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on that tape again, cover the tab hole with adhesive tape.



Recording TV programmes using VIDEO Plus+





Tip

- To cancel the procedure, press VIDEO Plus+ before pressing ENTER.

Note

- If the unit's VCR beeps repeatedly, the PlusCode is incorrect.

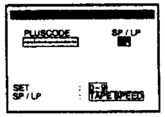
Just enter the programme's "PlusCode" listed in the TV programme guide. The date, times and programme position of that programme are set automatically. You can preset up to eight programmes at a time.

Before you start...

- Check that the unit's clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually. Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.

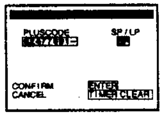
---

1 Press VIDEO Plus+.

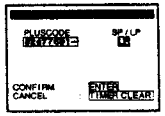


2 Press the number buttons to enter the programme's PlusCode.

If you make a mistake, press TIMER CLEAR and enter the correct number.



3 Lift the top cover of the remote commander, then press TAPE SPEED to select SP or LP.



continued

Recording TV programmes using VIDEO Plus+ (continued)

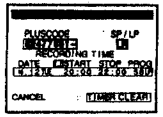
Tip

- TIMER REC on the unit has the same function as TIMER REC ON/OFF on the remote commander.

Note

- If you selected any audio input while watching the unit's VCR picture before the unit's VCR enters recording standby, only the picture switches to the TV after you press TIMER REC ON/OFF.

4 Close the top cover of the remote commander, then press ENTER to confirm.



The date, start and stop times, programme position, and tape speed appear on the TV screen.

If you want to turn on the PDC function, or add daily/weekly settings on the programme, see page 40 and change the TIMER SET/CHECK menu.

For details on the PDC function, see "Timer recording with PDC signals" on page 41.

If the information is not correct, press TIMER CLEAR to cancel the setting.

5 To enter another setting, repeat steps 1 through 4.

6 Press TIMER REC ON/OFF.

The TIMER indicator appears in the display window and the unit's VCR stands by for timer recording.

The picture and sound switch to the TV.

To stop recording

To stop the unit's VCR while recording, press TIMER REC ON/OFF.

To record satellite broadcasts

If you connect a satellite tuner and the unit, you can record satellite programmes.

1. Turn on the satellite tuner.
2. Press VHS LINE (if the satellite tuner is connected to the unit with the LINE jacks).
3. On the satellite tuner, select the satellite programme for which you wish to make a timer setting.
4. Repeat the steps 1 through 6 starting on page 37.
5. Keep the satellite tuner turned on until the unit's VCR finishes the timer recording.

Using the unit after setting the timer

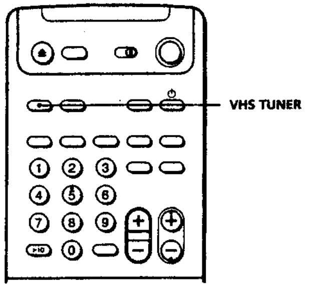
You can use the unit to select and listen to or watch other input sources (see "Audio/Video Equipment Operations" from page 44) during timer recording standby and timer recording.

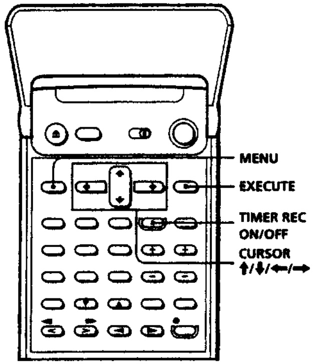
To use the unit's VCR before a timer recording begins, just press TIMER REC ON/OFF. The TIMER indicator turns off and the unit's VCR switches on. Remember to press TIMER REC ON/OFF again to reset the timer after using the unit's VCR.

You can also do the following VCR related tasks while the unit's VCR is recording:

- Reset the counter.
- Display tape information on the TV screen.
- Check the timer settings.

Setting the timer manually





Tip

- To set the programme position, you can also use the PROG +/– or programme number buttons.

Notes

- When setting the timer with PDC signals, enter the start and stop times exactly as indicated in the TV programme guide, otherwise the PDC function won't work.
- If the PDC signal is too weak or the broadcasting station failed to transmit PDC signals, the unit's VCR will start recording at the set time without using the PDC function.

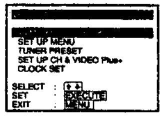
If VIDEO Plus+ is not available in your area, follow the instructions below to set the timer to record programmes

Before you start...

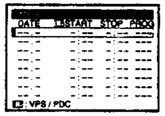
- Check that the unit's clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually, and press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.

1 **Lift the top cover of the remote commander.**

Press MENU. Then press CURSOR ↑/↓ to move the cursor (I) to VHS MENU, and press EXECUTE.



2 **Press CURSOR ↑/↓ to move the cursor (I) to TIMER SET/CHECK, then press EXECUTE.**



3 **Set the date, PDC function, start and stop times, programme position, and tape speed:**

1 Press CURSOR → to highlight each item in turn.

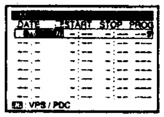
2 Press CURSOR ↑/↓ to set each item.

To correct a setting, press CURSOR ← to return to that setting and reset.

To record the same programme every day or on the same day every week, press CURSOR ↓ while the date is highlighted. For details, see "Daily/weekly recording" on the next page.

If you don't want to use the PDC function, highlight the " V/P " column and press CURSOR ↑/↓ to turn off " V/P ." For details, see "Timer recording with PDC signals" on the next page.

To record from a satellite tuner or other source connected to the EURO LINE IN connector, press CURSOR ↑/↓ in the "PROG" column repeatedly to display "LINE."



- "TIMER" flashes in the display window if you press TIMER REC ON/OFF with no tape inserted.
- You can only timer record TV programmes from the unit's VCR tuner, or EURO LINE IN input sources.

Note

- If you selected any audio input while watching the unit's VCR picture before the unit's VCR enters recording standby, only the picture switches to the TV after you press TIMER REC ON/OFF.

4 **Press CURSOR → to confirm the setting.**

The cursor (I) appears at the beginning of the line. To enter another setting, move the cursor to the next line and repeat step 3.

5 **Press EXECUTE.**

6 **Press TIMER REC ON/OFF.**

The TIMER indicator appears in the display window and the unit's VCR stands by for recording.

The picture and sound switch to the TV.

To record from a satellite tuner or other source, leave the connected equipment switched on.

To stop recording

To stop the unit's VCR while recording, press TIMER REC ON/OFF.

Daily/weekly recording

In step 3 above, press CURSOR ↓ in the "DATE" column to select the recording pattern. Each time you press CURSOR ↓, the indication changes as shown below.

the current date → SUN-SAT → MON-SAT → MON-FRI → EVERY SAT .....
→ EVERY MON → EVERY SUN → 1 month later → (dates count down)
→ the current date

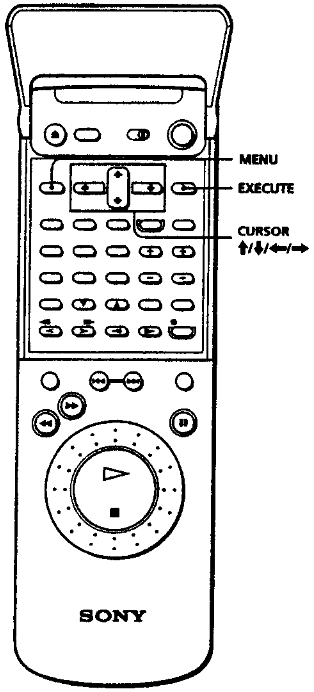
Timer recording with PDC signals

The broadcast systems transmit VPS (Video Programme System) or PDC (Programme Delivery Control) signals with their TV programmes. These signals ensure that your timer recordings are made regardless of broadcast delay, early starts or broadcast interruptions.
In step 3 above, press CURSOR ↑/↓ to turn the V/P indicator on or off after you set the recording date. If you do not want to set the PDC function, turn off the V/P indicator.
You can also use the PDC function for equipment connected to the EURO LINE IN connector.

Using the unit after setting the timer

See page 39.

Checking/changing/ cancelling timer settings

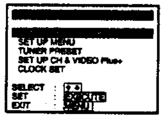

MENU
EXECUTE
CURSOR
↑/↓/←/→
SONY

Before you start...

- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually.
    Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.

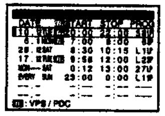
1 Lift the top cover of the remote commander.

Press MENU. Then press CURSOR ↑/↓ to move the cursor (I) to VHS MENU, and press EXECUTE.


SET UP MENU
TUNER PRESET
SET UP CH & VIDEO Plus+
CLOCK SET
SELECT : ↑↓
SET : EXECUTE
EXIT : MENU

2 Press CURSOR ↑/↓ to move the cursor (I) to TIMER SET/CHECK, then press EXECUTE.

- If you want to change a setting, go on to the next step.
- If you do not need to change the settings, press EXECUTE, then turn off the unit's VCR to return to recording standby.


DATE
START
STOP
PROG
: VPS / PDC

3 Press CURSOR ↑/↓ to select the setting you want to change or cancel:

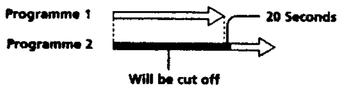
- To change the setting, press CURSOR ←/→ to highlight the item you want to change, then press CURSOR ↑/↓ to reset it.
  To cancel the PDC function, turn off the V/P indicator.
  Then, press CURSOR → repeatedly until the cursor (I) appears at the beginning of the line.
- To cancel the setting, press TIMER CLEAR.

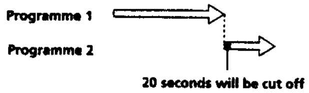
4 Press EXECUTE.

If any settings remain, turn off the unit's VCR to return to recording standby.

When the timer settings overlap

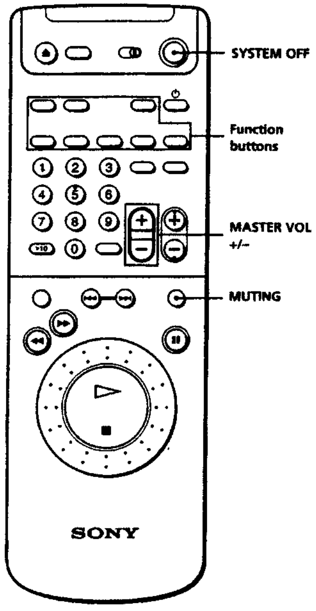
The programme that starts first has priority and the second programme starts recording only after the first programme has finished. If the programmes start at the same time, the programme listed first in the menu has priority.

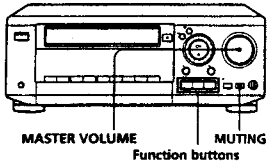

Programme 1
Programme 2
20 Seconds
Will be cut off


Programme 1
Programme 2
20 seconds will be cut off

Audio/Video Equipment Operations

Selecting the equipment





You can control the connected audio and video equipment with this remote commander. Before operating any equipment, press the function button corresponding to the equipment. Note that all equipment must be made by Sony to control with the remote commander.

Controlling the function buttons

The function buttons of the remote commander have the following three roles.

- Turning on the unit and related piece of equipment (excluding audio components).
- Switching the input source.
- Switching the remote commander to operate the selected equipment (see the sections for controlling each piece of equipment's control section from page 47 to 60).

To change the input source, you can also use the function buttons on the unit.

The following tables show the relationship between the function buttons (on the remote commander and unit) and the input source.

Function buttons on the remote commander (SYSTEM CONTROL/ FUNCTION)

Press	The following indication appears on the TV screen	And the unit's input switches to the
VHS TUNER	Programme position	Unit's VCR
VHS LINE	LINE	EURO LINE IN connector
VIDEO1	VIDEO1	VIDEO1 (VIDEO IN, AUDIO L/R IN) jacks
VIDEO2	VIDEO2	VIDEO2 INPUT (VIDEO, AUDIO L/R) jacks
TV[*1]	(TV)[*2]	EURO-AV connector
CD	CD	CD (AUDIO L/R IN) jacks
TUNER	TUNER	TUNER (AUDIO L/R IN) jacks
TAPE/MD	TAPE/MD	TAPE/MD (AUDIO L/R IN) jacks

[*1] If the TV is connected to the unit with only the aerial cable, the unit's speakers do not reproduce the sound even if you press this button. When you use the TV tuner, press TV CONTROL ON (see "Using the TV independently" on page 50.)

[*2] "TV" usually doesn't appear on the TV screen. If another monitor is connected to the MONITOR VIDEO OUT jack, "TV" appears on the monitor screen.

Function buttons on the unit (FUNCTION)

Press the following button repeatedly	Until the following indication appears on the TV screen	Then the unit's input switches to the
VHS	Programme position	Unit's VCR
	LINE	EURO LINE IN connector
VIDEO[*1]	(TV)[*2]	EURO-AV connector
	VIDEO1	VIDEO1 (VIDEO IN, AUDIO L/R IN) jacks
	VIDEO2	VIDEO2 INPUT (VIDEO, AUDIO L/R) jacks
AUDIO	TUNER	TUNER (AUDIO L/R IN) jacks
	CD	CD (AUDIO L/R IN) jacks
	TAPE/MD	TAPE/MD (AUDIO L/R IN) jacks

[*1] If the TV is connected to the unit with only the aerial cable, the unit's speakers do not reproduce the sound even if you select the TV with this button. When you use the TV tuner, press TV CONTROL ON (see "Using the TV independently" on page 50.)

[*2] "TV" usually doesn't appear on the TV screen. If another monitor is connected to the MONITOR VIDEO OUT jack, "TV" appears on the monitor screen.

Watching a picture while listening to audio equipment

If you change the input from a video source to an audio source, the sound will be switched to the audio source but the picture continues to be output. The last selected video source's indicator remains lit in the display window.

Before operating audio/video equipment

- Connect all the components securely and correctly as indicated on pages 6 through 12.
- Turn MASTER VOLUME to the leftmost position (0) to avoid damaging the speakers.
- Note that you may not be able to control all the functions of the equipment described in these Operating Instructions with the remote commander. In this case, refer to the operating instructions of each piece of equipment.
  If there is any function you cannot control with the remote commander, use the remote control of each piece of equipment.

continued

Using the operations common to all equipment

To increase or decrease the volume

Press MASTER VOL +/– on the remote commander, or turn MASTER VOLUME on the unit clockwise or anticlockwise.

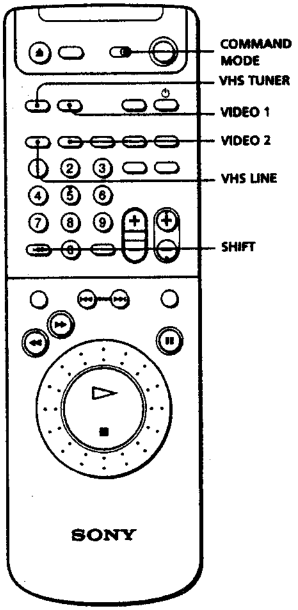
To mute the sound

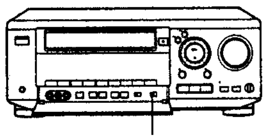
Press MUTING. To restore the sound, press it again.

To turn off the whole system

Press SYSTEM OFF.

Controlling VCRs





Controlling VCRs which have the COMMAND MODE selector

To control a VCR with the remote commander, set the COMMAND MODE selectors on the remote commander and the VCR to the same position. The COMMAND MODE*[1] selectors on both the unit and remote commanders are factory set to VTR3. Be sure to set the COMMAND MODE selector on each VCR to a different position to operate each VCR independently.
If the COMMAND MODE selector on a VCR is set to OFF, you cannot control that VCR with the remote commander.
If the COMMAND MODE selector on this unit is set to OFF, although you cannot control the unit's VCR with the remote commander, MASTER VOL +/–, MUTING, and the function buttons on the remote commander can operate the unit.

*[1] The selector's name on the unit is VTR COMMAND MODE, however, it is described as COMMAND MODE in these Operating Instructions for the sake of convenience.

Controlling a VCR which doesn't have a COMMAND MODE selector

If a VCR has no COMMAND MODE selector, set COMMAND MODE on the remote commander in the following way.

If your VCR is a	Set COMMAND MODE to
Sony Betamax format VCR	VTR1
Sony 8mm formatVCR	VTR2
Sony VHS format VCR	VTR3

If you have another VHS format VCR, set COMMAND MODE on the unit to VTR1 or VTR2.

Turning on and controlling the unit's VCR

1 Set COMMAND MODE on the remote commander to the same position as COMMAND MODE on the unit.
2 Press VHS TUNER.
   - If the TV doesn't turn on, turn it on manually.
     Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
   - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
   - If connected with only the antenna cable, set the TV to the VCR's programme position manually.

continued

Controlling VCRs (continued)

Turning on and controlling another VCR

1 Set COMMAND MODE on the remote commander to the same position as COMMAND MODE on the other VCR.

If the other VCR doesn't have a COMMAND MODE selector, set COMMAND MODE on the remote commander according to the table in "Controlling a VCR which has no COMMAND MODE selector" on the previous page.

2 Press VIDEO1, VIDEO2, or VHS LINE depending on which jacks the other VCR is connected to.

The other VCR and TV turn on, and the corresponding input source is selected.

Customizing the remote commander to make controlling other VCRs easier

Initially VIDEO1 and VIDEO2 only select the input source, and COMMAND MODE on the remote commander determines which VCR you can control with the remote commander.
However, you can customize VIDEO1 and VIDEO2 on the remote commander to control the other VCR.
While pressing either VIDEO1 or VIDEO2,

- press number button 7 to control the VCR with its COMMAND MODE selector set to VTR1, or Betamax format VCR;
- press number button 8 to control the VCR with its COMMAND MODE selector set to VTR2, or 8mm format VCR; or,
- press number button 9 to control the VCR with its COMMAND MODE selector set to VTR3, or VHS format VCR.

The customized button is no longer related to the COMMAND MODE position. To turn on and control the other VCR with the remote commander, simply press the customized VIDEO1 or VIDEO2 button.

To relate VIDEO1 or VIDEO2 with COMMAND MODE again

While pressing VIDEO1 or VIDEO2, press SHIFT.

Using the remote commander buttons to control the other VCR

You can control the other VCR with the same buttons you use to control this unit's VCR. Note that the VIDEO Plus+, DISPLAY, MENU, CURSOR ↑/↓/←/→, TIMER REC ON/OFF, and TIMER CLEAR buttons, and the CLICK SHUTTLE ring don't operate other VCRs.

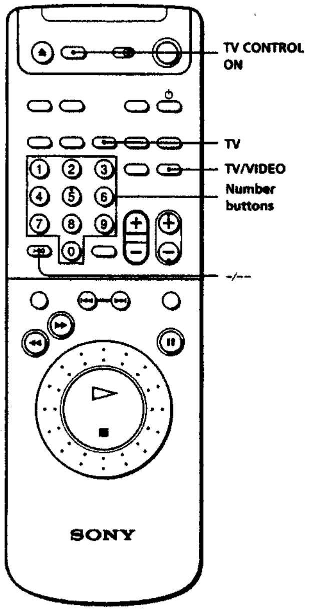
Turning off the selected VCR

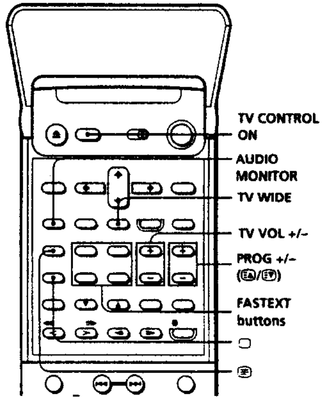
Press ⏻ while the remote commander is in the selected VCR operation mode.

Note

- You cannot do this customizing for VHS TUNER or VHS LINE. These buttons are always related to the COMMAND MODE position.

Controlling the TV





Note

- You cannot use the on-screen display while the unit is in TV control mode.

Watching a TV programme

1 Press TV.

The TV and unit turn on.

2 Press the number buttons to select the programme position.

For two-digit numbers, press -/-- before pressing the number buttons.

To scan through programme positions, lift the top cover of the remote commander, then press PROG +/–.

Selecting a stereo or bilingual programme

Press AUDIO MONITOR. Each press changes the sound between bilingual and stereo.

Using the WIDE function

Press TV WIDE. Each press changes the WIDE mode.

Displaying Teletext

1 Select a TV channel which carries the Teletext broadcast you want to watch.

2 Lift the top cover of the remote commander and press ⊜ to display the Teletext.

To access the next or previous page

Lift the top cover of the remote commander and press PROG +/– (▲/▼).

To turn off Teletext

Press □.

Using FASTEXT

This feature allows you to quickly access a Teletext page that uses FASTEXT. When a FASTEXT page is broadcast, a colour-coded menu appears at the bottom of the screen. The colours of the menu correspond to the red, green, yellow, and blue buttons on the remote commander. These coloured buttons function as the FASTEXT buttons in Teletext mode.
Press the coloured button which corresponds to the colour-coded menu. The page is displayed after a few seconds.

continued

Using the TV independently

Press TV CONTROL ON.

The TV turns on.
You can use the buttons described above to control the TV.
To control the volume, lift the top cover of the remote commander and press TV VOL +/–.

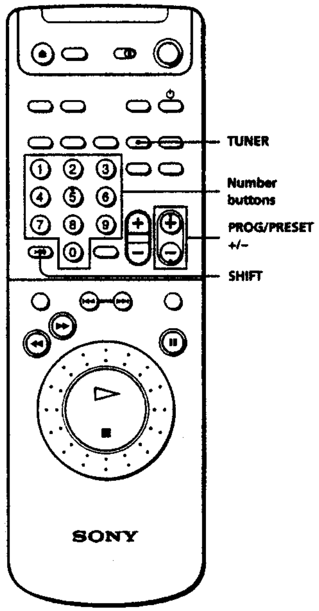
To select the TV's input source

Press TV/VIDEO repeatedly until you have the desired input source.

Turning off the TV

Press ⏻ while the remote commander is in TV control mode.

Listening to a radio programme



Listening to preset radio programmes

1 Press TUNER, and turn on the tuner.
  The unit turns on and switches the input source to the tuner connected to the TUNER jacks.
2 Select the preset number by pressing the number buttons.

To scan preset stations

Press PROG/PRESET +/–. Each press changes the preset number.
Press and hold this button to keep changing the preset numbers.

To use the tuner with the A, B, and C categorization system

1 Press TUNER, and turn on the tuner.
  The unit turns on and switches the input source to the tuner connected to the TUNER jacks.
2 Press SHIFT repeatedly to select A, B, or C, then press the number.
  For example, select A and press 7 to tune in the station preset as A7.

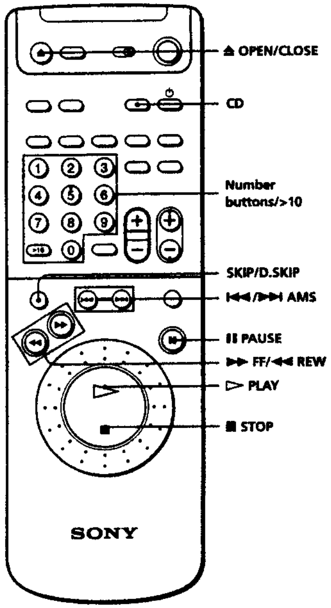
To scan the preset stations

Press PROG/PRESET +/– in step 2 above. Each press changes the preset number as follows:

A1 ↔ A2 ↔ ... ↔ A0 ↔ B1 ↔ B2 ↔ ... ↔ B0 ↔ C1 ↔ C2 ↔ ... ↔ C0

Press and hold this button to keep changing the preset numbers.

Playing back a CD



1 Press CD and turn on the CD player.

The unit turns on and switches the input source to the CD player connected to the CD jacks.

2 Press ≜ OPEN/CLOSE to open the disc tray.

If the disc tray or cover doesn't open, refer to your CD player's operating instructions.

3 Load a CD or CDs referring to your CD player's operating instructions.

4 Press ≜ OPEN/CLOSE to close the disc tray.

If the disc tray or cover doesn't close, refer to your CD player's operating instructions.

Depending on the CD player, you can skip this step. Refer to your CD player's operating instructions.

5 Press ▷ PLAY.

Depending on the CD player, you can skip this step. Refer to your CD player's operating instructions.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Scan forward or backward	And hold ►► FF or ◄◄ REW during playback
Locate the beginning of other tracks	I◄◄/►►I AMS repeatedly
(Stop and) remove the CD This function doesn't operate some CD players.	≜ OPEN/CLOSE
Close the tray This function doesn't operate some CD players.	≜ OPEN/CLOSE
Select other discs This function only works for CD players with a built-in multi-disc changer.	SKIP/D.SKIP repeatedly during playback or before playback

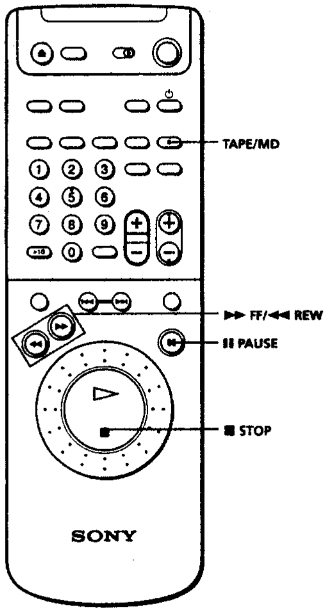
To locate a track with the number buttons

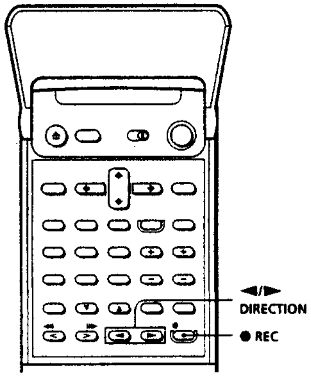
Press one of the number buttons for single digit track numbers (except 0).
To locate the 10th track, press 1, then 0.
To enter a track number over 10, first press >10, then any number button for the tens digit except 0, and the number button for the ones digit.

Examples of entering the two-digit number

To	Press
Enter 30	>10, then 3, and 0
Enter 24	>10, then 2, and 4

Controlling a cassette deck





The remote commander's TAPE/MD button is factory set to work for single-cassette decks or deck B if you have a double-cassette deck. If you want the remote commander operate deck A, you need to customize your remote commander. See "Customizing the remote commander for deck A of a double-cassette deck" on the next page.

Playing a tape

1 Press TAPE/MD, and turn on the cassette deck.

The unit turns on and switches the input source to the cassette deck connected to the TAPE/MD jacks.

2 Insert a recorded cassette (into deck B for double-cassette decks) referring to your cassette deck's operating instructions.

3 Lift the top cover of the remote commander and press ► DIRECTION.

For reverse side playback, lift the top cover of the remote commander and press ◄ DIRECTION.

Additional tasks

To	Press
Stop play	■ STOP
Pause play This function doesn't operate some cassette decks.	II PAUSE
Resume play after pause	► DIRECTION, ◄ DIRECTION, or II PAUSE
Fast-forward	►► FF
Rewind	◄◄ REW

Recording on a tape

1 Press TAPE/MD, and turn on the cassette deck.

The unit turns on and switches the input source to the cassette deck connected to the TAPE/MD jacks.

2 Insert a blank cassette with its erasure prevention tabs in place (into deck B for a double-cassette deck) referring to your cassette deck's operating instructions.

3 Select the input source by pressing one of the function buttons on the unit.

If you want to select the unit's VCR or piece of equipment connected the LINE jacks, press VHS repeatedly to display a programme position or "LINE" on the TV screen.

If you want to select a piece of equipment connected to the VIDEO 1 or VIDEO 2 jacks, press VIDEO repeatedly to display "VIDEO 1" or "VIDEO 2" on the TV screen.

If you want to select the CD player or tuner, press AUDIO repeatedly to display "CD" or "TUNER" on the TV screen.

continued

4 Lift the top cover of the remote commander and press ● REC to set the cassette deck to recording pause.

5 Press ▶ DIRECTION (or ◀ DIRECTION to record on the reverse side).

Recording starts.

6 Play back the programme source.

Additional tasks

To	Press
Stop recording	■ STOP
Pause recording	❚❚ PAUSE
Resume recording	❚❚ PAUSE, ▶ DIRECTION, or ◀ DIRECTION

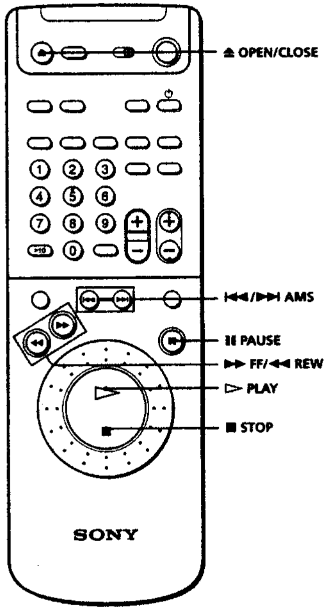
Customizing the remote commander for deck A of a double-cassette deck

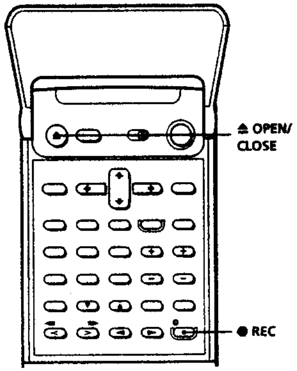
The remote commander's TAPE/MD button is factory set to operate single-cassette decks or deck B if you have a double-cassette deck.
To control deck A, first you need to customize one of the function buttons for deck A.

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. While pressing the selected function button, press the number button 5. (You must select the function button corresponding to the input jacks the cassette deck is connected to.)
Now that function button operates deck A. To change the button's function again, see "Customizing the remote commander function buttons" on page 80.

To play back a tape, follow the instructions in "Playing a tape" on the previous page. During the procedure, press the function button you customized for deck A in step 1 instead of TAPE/MD, and insert a recorded cassette into deck A in step 2 instead of deck B.

Controlling a DAT deck





Customizing the remote commander for a DAT deck

The remote commander is not factory set to control DAT decks. So you need to customize the function button corresponding to the jacks the DAT deck is connected to. For example, if you connect the DAT deck to the TAPE/MD jacks, customize TAPE/MD for the DAT deck in the following way.

While pressing the function button (e.g. TAPE/MD), press number button 2.
The function button is customized to control the DAT deck.

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. To change the button's function again, see "Customizing the remote commander function buttons" on page 80.

Playing a tape

1 Press the function button you customized for the DAT deck, and turn on the DAT deck.

The unit turns on and switches the input source to the jacks the DAT deck is connected to.

2 Press ≜ OPEN/CLOSE to open the cassette cover/holder.

If the cassette cover/holder doesn't open, refer to your DAT deck's operating instructions.

3 Insert a cassette.

4 Press ▷ PLAY.

The deck starts playing a tape.

Additional tasks

To	Press
Stop playing	■ STOP
Go to the next track	▶▶❚ AMS
Go to the preceding track	❚◀◀ AMS
Fast-forward or rewind	▶▶ FF or ◀◀ REW during stop
Monitor the sound during fast-forward or rewind	▶▶ FF or ◀◀ REW during playback. To resume normal playback, release the button.
Eject the cassette	≜ OPEN/CLOSE during stop

continued

Recording on a tape

1. Press the function button you customized for the DAT deck, and turn on the DAT deck.

   The unit turns on and switches the input source to the TAPE/MD jacks the DAT deck is connected to.
2. Insert a cassette with the record-protect tab closed.
3. Select an input source by pressing one of the function buttons on the unit.

   If you want to select the unit's VCR or piece of equipment connected the LINE jacks, press VHS repeatedly to display a programme position or "LINE" on the TV screen.

   If you want to select a piece of equipment connected to the VIDEO 1 or VIDEO 2 jacks, press VIDEO repeatedly to display "VIDEO 1" or "VIDEO 2" on the TV screen.

   If you want to select the CD player or tuner, press AUDIO repeatedly to display "CD" or "TUNER" on the TV screen.
4. Locate the point you want to start recording from.

   To record from the beginning of the tape, press ◀◀ REW to rewind the tape to the beginning.

   To record from the end of the recorded portion, press ▶▶ FF.

   The deck locates the end of the recorded portion on the tape and stops automatically.
5. Lift the top cover of the remote commander and press ● REC to set the MD deck to recording pause.
6. Press ▷ PLAY or ❚❚ PAUSE.

   Recording starts.
7. Play back the programme source.

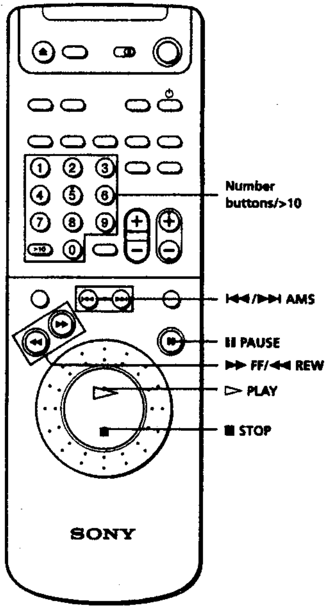
Additional tasks

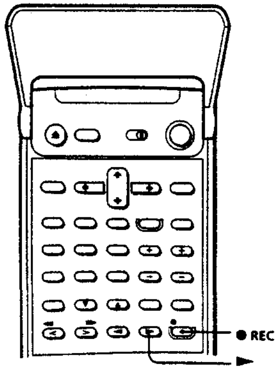
To	Press
Stop recording	■ STOP
Pause recording	❚❚ PAUSE. To resume recording, press the button again.
Resume recording	❚❚ PAUSE or ▷ PLAY

Note

- You must connect the DAT deck to the TAPE/MD jacks to record on a tape with the DAT deck.

Controlling an MD deck





Customizing the remote commander for an MD deck

The remote commander is not factory set to control MD decks. So you need to customize the function button corresponding to the jacks the MD deck is connected to. For example, if you connect the MD deck to the TAPE/MD jacks, customize TAPE/MD for the MD deck in the following way.

While pressing the function button (e.g. TAPE/MD), press number button 3.
The function button is customized to control the MD deck.

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. To change the button's function again, see "Customizing the remote commander function buttons" on page 80.

Playing an MD

1. Press the function button you customized for the MD deck, and turn on the MD deck.

   The unit turns on and switches the input source to the jacks the MD deck is connected to.
2. Insert an MD referring to your MD deck's operating instructions.
3. Press ▷ PLAY.

   The MD deck starts playing.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	❚❚ PAUSE
Resume play after pause	❚❚ PAUSE or ▷ PLAY
Scan forward or backward	And hold ▶▶ FF or ◀◀ REW during playback
Locate the beginning of other tracks	I◀◀ /▶▶I AMS repeatedly

To locate a track with the number buttons

Press one of the number buttons for single digit numbers (except 0). To locate the 10th track, press 1, then 0.
To enter a track number over 10, first press >10, then any number button for the tens digit except 0, and the number button for the ones digit.

Examples of entering the two-digit number

To	Press
Enter 30	>10, then 3, and 0
Enter 24	>10, then 2, and 4

continued

Controlling an MD deck (continued)

Note

- You must connect the MD deck to the TAPE/MD jacks to record on an MD with the MD deck.

Recording on an MD

1. Press the function button you have customized for the MD deck, and turn on the MD deck.

   The unit turns on and switches the input source to the TAPE/MD jacks the MD deck is connected to.
2. Insert an MD with its erasure prevention tab closed, referring to your MD deck's operating instructions.
3. Select the input source by pressing one of the function buttons on the unit.

   If you want to select the unit's VCR or piece of equipment connected to the LINE jacks, press VHS repeatedly to display a programme position or "LINE" on the TV screen.

   If you want to select a piece of equipment connected to the VIDEO 1 or VIDEO 2 jacks, press VIDEO repeatedly to display "VIDEO 1" or "VIDEO 2" on the TV screen.

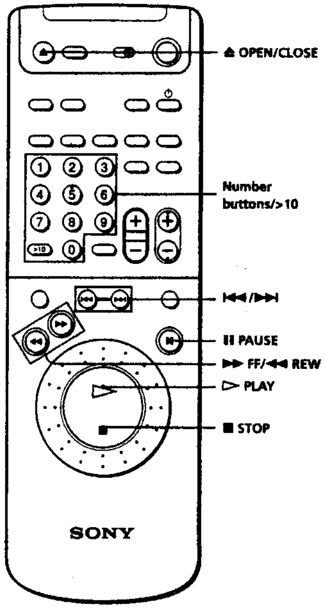
   If you want to select the CD player or tuner, press AUDIO repeatedly to display "CD" or "TUNER" on the TV screen.
4. Lift the top cover of the remote commander and press ● REC to set the MD deck to recording pause.
5. Press ► (or ▷ PLAY)

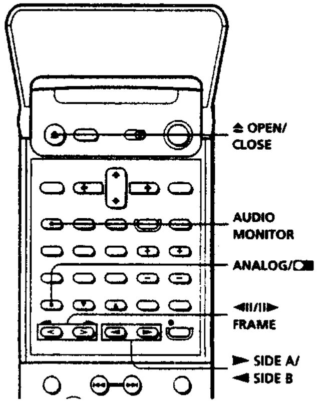
   Recording starts.
6. Play back the programme source.

Additional tasks

To	Press
Stop recording	■ STOP
Pause recording	II PAUSE. Press the button again to resume recording.
Resume recording	II PAUSE or ▷ PLAY

Controlling an LD player





Customizing the remote commander for an LD player

The remote commander is not factory set to control LD players. So you need to customize the function button corresponding to the jacks the LD player is connected to. For example, if you connect the LD player to the VIDEO 1 jacks, customize VIDEO1 for the LD player in the following way.

While pressing the function button (e.g. VIDEO1), press number button 6.

The function button is customized to control the LD player.

You can customize the VIDEO 1, VIDEO 2, CD, TAPE/MD, or TV function buttons. To change the button's function again, see "Customizing the remote commander function buttons" on page 80.

Playing back an LD

1. Press the function button you customized for the LD player, and turn on the LD player.

   The unit turns on and switches the input source to the jacks the LD player is connected to.
2. Press ⏏ OPEN/CLOSE to open the disc tray.
3. Place an LD on the disc tray.
4. Press ▷ PLAY.

   The disc tray closes and side A of the LD starts playing.

   When playback of side A ends, side B starts playing automatically.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Scan forward or backward	And hold ►► FF or ◄◄ REW during playback
Skip chapters or tracks	I◄◄ / ►►I repeatedly
(Stop and) remove the LD	⏏ OPEN/CLOSE
Close the tray	⏏ OPEN/CLOSE

To start playback from the beginning of either LD side

Press ► SIDE A to play side A of the LD from the beginning.
Press ◄ SIDE B to play side B of the LD from the beginning.

To pause playing just before starting

Press II PAUSE instead of ▷ PLAY after you place an LD on the disc tray.
The disc tray closes and the player waits at the start of the LD until you press ▷ PLAY or II PAUSE. If you want to start from side B, press ◄ SIDE B after you press II PAUSE.

continued

Controlling an LD player
(continued)

To locate a particular chapter or track

Press any number button to enter the single digit chapter/track number (except 0).
For two-digit numbers, press >10 repeatedly to enter the tens digit (the number of times you press the button becomes the tens digit number). Then press any number button to enter the ones digit.

Examples of entering a two-digit number

To	Press
Enter 30	>10 three times, then press 0
Enter 14	>10 once, then press 4

To play a chapter or track on the opposite side of the LD, press ◄◄ SIDE B while playing SIDE A (or ►► SIDE A while playing SIDE B), then enter the chapter or track number.

To play frame-by-frame (Step Play)

Press ◄II/II► FRAME repeatedly. Each press shifts the picture to the next frame.
For continuous frame playback, press and hold ◄II/II► FRAME.
To resume normal playback, press ▷ PLAY.

To listen to analog sound from an LD

If your LD contains digital sound tracks, the player automatically outputs digital sound. To listen to the sound recorded on analog soundtracks, press ANALOG/CX. To resume the digital mode, press ANALOG/CX again.

To play a stereo disc or Second Audio Programme (SAP) disc

When playing SAP discs such as bilingual discs, you can alternate the sound output by pressing AUDIO MONITOR. Each press changes the sound as follows.

Stereo disc	SAP disc
Left channel	Sound track 1 (Left channel)
Right channel	Sound track 2 (Right channel)
Stereo (Both channels)	Both tracks (Left and right channels)

To play an LD with the CX (CX) logo

LDs with the CX logo are recorded with the CX noise reduction system for analog sound. Although LD players usually detect and activate this system, you can manually set the LD player to use the system.

Press ANALOG/CX.

To cancel this function, press ANALOG/CX again.

Turning off the LD player

Press ⏻ while the remote commander is in LD control mode.

Sound Field Operations
Taking advantage of the sound fields

You can enjoy the surround sound effect by simply selecting one of the pre-programmed sound fields according to the type of playback source.

1 Select the input source.
2 Select the sound field. (See "Using the pre-programmed sound fields" on page 34.)
   You can set the sound effect independently for each input source.

Selecting the sound field

Select	To	You need the following speakers
PROLOGIC	Fully enjoy programmes processed with Dolby Pro Logic Surround sound (See "What's Dolby Surround and Dolby Pro Logic Surround?" on the next page.)	See "Selecting the centre mode" on page 18.
THEATRE	Add the acoustic reflections of a theatre to the decoded Dolby Surround signals (See "What's Dolby Surround and Dolby Pro Logic Surround?" on the next page.)	See "Selecting the centre mode" on page 18.
MONO MOVIE	Create a theatre-like environment for movies with monaural soundtracks (See "What's surround sound?" on the next page.)	The surround (rear left and right) speakers as well as the front left and right speakers
HALL	Reproduce the acoustics of a hall (See "What's surround sound?" on the next page.)	The surround (rear left and right) speakers as well as the front left and right speakers
STADIUM	Reproduce the feeling of a large open-air stadium (See "What's surround sound?" on the next page.)	The surround (rear left and right) speakers as well as the front left and right speakers
GAME	Obtain maximum audio impact from video game software (See "What's surround sound?" on the next page.)	The surround (rear left and right) speakers as well as the front left and right speakers
ACOUSTIC	Reproduce normal 2 channel stereo	Only the front left and right speakers
OFF	Turn off the sound effect	Only the front left and right speakers

To temporarily turn off the sound effect you set

1 Select the input source for the sound effect you want to turn off.
2 Press SURROUND on the unit to turn off the sound effect.
   To resume the previous sound effect, press SURROUND again.

continued

Taking advantage of the sound fields (continued)

What's Dolby Surround and Dolby Pro Logic Surround?

Dolby Surround is a system that decodes the extra channels of Dolby Surround encoded sound tracks on movie videos and TV programmes, and produces sound effects and echoes that make the action seem to envelop you.

Dolby Pro Logic Surround is a more advanced system developed after Dolby Surround. The sound image is improved by using four separate channels: off-screen audio effects, on-screen dialogue, left-to-right panning, and music. These channels manipulate the sound and enhance the action as it happens on the screen.

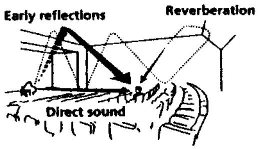
The unit offers PROLOGIC mode for these systems as one of the sound fields. You can tell if a video tape or laser disc uses Dolby Surround or Dolby Pro Logic Surround encoded software by looking at the packaging. (Some video tapes and laser discs may use Dolby Surround even if it's not indicated on the package.)

What's surround sound?

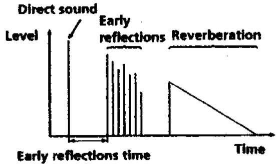
Surround sound consists of three elements, direct sound, early reflected sound (early reflections), and reverberated sound (reverberation). The acoustics of the venue affect the way these three sound elements are heard.

The unit combines the three sound elements in such a way that you can actually feel the size and type of a particular venue such as a concert hall. The unit also varies the combination of the sound elements to offer you a variety of sound fields (THEATRE, MONO MOVIE, HALL, STADIUM, and GAME).

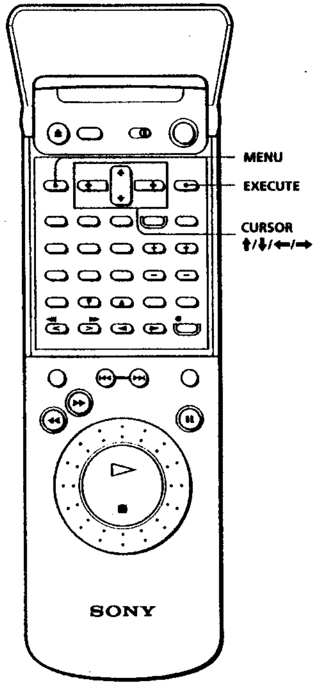
The three sound elements in an actual concert hall


Early reflections
Reverberation
Direct sound

Transition of sound from rear speakers



Getting the most out of Dolby Pro Logic Surround sound


MENU
EXECUTE
CURSOR ↑/↓/←/→
SONY

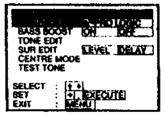
To obtain the best possible Dolby Pro Logic Surround sound, you need to adjust the delay time. The centre mode and speaker levels were set in EASY SET UP, so you don't have to change those settings unless you change the speaker configuration.

If you change the speaker configuration, see "Reconfiguring the PROLOGIC and THEATRE sound fields" on page 68.

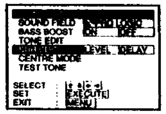
Adjusting the delay time

You can make the surround sound more effective by delaying the output from the rear speakers (delay time) relative to the front speakers. You don't have to adjust the delay time if you select 3CH LOGIC for CENTRE MODE.

1 **Repeat steps 1 through 4 in "Using the pre-programmed sound fields" on page 34 and select PROLOGIC in step 3.**

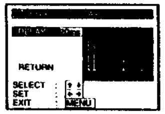

PRO LOGIC
BASS BOOST ON OFF
TONE EDIT
SUR EDIT LEVEL DELAY
CENTRE MODE
TEST TONE
SELECT : ↑ ↓
SET : →, EXECUTE
EXIT : MENU

2 **Press CURSOR ↑/↓/←/→ to move the cursor (I) to SUR EDIT, then highlight DELAY.**


SOUND FIELD PRO LOGIC
BASS BOOST ON OFF
TONE EDIT
SUR EDIT LEVEL DELAY
CENTRE MODE
TEST TONE
SELECT : ↑ ↓ ← →
SET : EXECUTE
EXIT : MENU

3 **Press EXECUTE, then press CURSOR ←/→ to select 15ms, 20ms, 25ms, or 30ms as the delay time.**

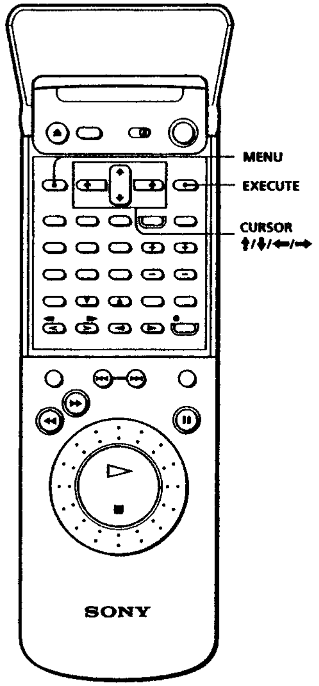
Make the delay time longer when you have placed the rear speakers in a small room or close to your listening position, and make it shorter when you have placed them in a large room or far from your listening position.


DELAY
RETURN
SELECT : ↑ ↓
SET : ← →
EXIT : MENU

4 **Press MENU to return to the original screen.**

Customizing the sound fields

Each sound field is composed of an equalizer (bass, midrange, and treble) and surround sound parameters: sound variables that create the sound image. You can customize the sound fields by adjusting the speaker levels, effects, and surround sound parameters to suit your listening situation.
Once you customize the sound fields, they are stored in memory.

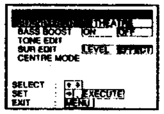

MENU
EXECUTE
CURSOR
↑/↓/←/→
SONY

Tips

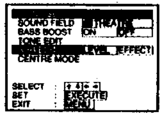
- To adjust the relative volume balance between the front left and right speakers, use BALANCE L/R on the unit.
- To restore the factory settings of the sound fields, turn on the unit while pressing SURROUND.

Adjusting the speaker level for THEATRE, MONO MOVIE, HALL, STADIUM, or GAME

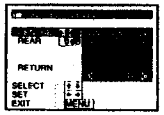
1 Start playing a programme source, then repeat steps 1 through 4 in "Using the pre-programmed sound fields" on page 34 and select one of the above sound fields in step 3.


THEATRE
BASS BOOST ON OFF
TONE EDIT
SUR EDIT LEVEL EFFECT
CENTRE MODE
SELECT : ↑↓
SET : → EXECUTE
EXIT : MENU

2 Press CURSOR ↑/↓/←/→ to move the cursor (I) to SUR EDIT, then highlight LEVEL.


SOUND FIELD THEATRE
BASS BOOST ON OFF
TONE EDIT
SUR EDIT LEVEL EFFECT
CENTRE MODE
SELECT : ↑↓←→
SET : EXECUTE
EXIT : MENU

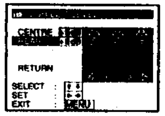
3 Press EXECUTE. Then, press ↑/↓ to move the cursor to CENTRE, and press CURSOR ←/→ to increase or decrease the volume of the centre speaker to a preferable level.


REAR
RETURN
SELECT : ↑↓
SET : ←→
EXIT : MENU

If you select MONO MOVIE, HALL, STADIUM, or GAME in step 1, skip this step.

If you select THEATRE in step 1, and you set the centre mode to PHANTOM (see "Selecting the centre mode" on page 18), skip this step.

4 Press CURSOR ↑/↓ to move the cursor (I) to REAR, then press CURSOR ←/→ to increase or decrease the volume of the rear speakers to a preferable level.


CENTRE
RETURN
SELECT : ↑↓
SET : ←→
EXIT : MENU

If you select THEATRE in step 1 and 3CH LOGIC is selected as the centre mode (see "Selecting the centre mode" on page 18), skip this step.

The rear speakers' volume balance is always even.

5 Press MENU to return to the original screen.

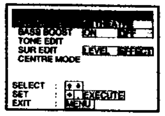
To return to the previous menu

Select RETURN instead of pressing MENU in step 5, then press EXECUTE.

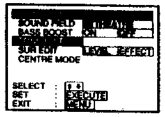
Adjusting the tone for all sound fields

Adjust the tone of the front, centre and rear speakers for optimum sound. You can adjust the tone for all sounds fields, including PROLOGIC.

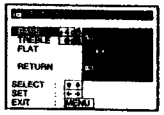
1 Start playing a programme source, then repeat steps 1 through 4 in "Using the pre-programmed sound fields" on page 34 and select one of the sound fields in step 3.


THEATRE
BASS BOOST ON OFF
TONE EDIT
SUR EDIT LEVEL EFFECT
CENTRE MODE
SELECT : ↑↓
SET : → EXECUTE
EXIT : MENU

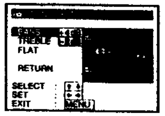
2 Press CURSOR ↑/↓ to move the cursor (I) to TONE EDIT.


SOUND FIELD THEATRE
BASS BOOST ON OFF
TONE EDIT
SUR EDIT LEVEL EFFECT
CENTRE MODE
SELECT : ↑↓
SET : EXECUTE
EXIT : MENU

3 Press EXECUTE. Then, press CURSOR ↑/↓ to move the cursor (I) to BASS, and press CURSOR ←/→ to adjust the level of the low frequencies as you like.


TREBLE
FLAT
RETURN
SELECT : ↑↓
SET : ←→
EXIT : MENU

4 Press CURSOR ↑/↓ to move the cursor (I) to TREBLE, then press cursor ←/→ to adjust the level of the high frequencies as you like.


TREBLE
FLAT
RETURN
SELECT : ↑↓
SET : ←→
EXIT : MENU

5 Press MENU to return to the original screen.

To return to the previous menu

Select RETURN instead of pressing MENU in step 5, then press EXECUTE.

To start your adjustment from a flat equalizer curve

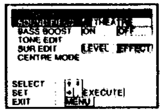
Select FLAT after step 2 above, then repeat steps 3 through 5.

continued

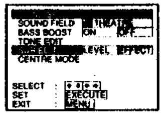
Adjusting the effect level for THEATRE, MONO MOVIE, HALL, STADIUM, or GAME

You can adjust the influence of the sound field to the level you like.

1 Start playing a programme source, then repeat steps 1 through 4 in "Using the pre-programmed sound fields" on page 34 and select one of the above sound fields in step 3.

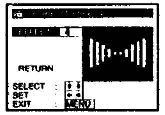

SOUND FIELD
THEATRE
BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
EFFECT
CENTRE MODE
SELECT
SET
EXECUTE
EXIT
MENU

2 Press CURSOR ↑/↓/←/→ to move the cursor (I) to SUR EDIT, then highlight EFFECT.


SOUND FIELD
THEATRE
BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
EFFECT
CENTRE MODE
SELECT
SET
EXECUTE
EXIT
MENU

3 Press EXECUTE, then press CURSOR ↑/↓ to select 1, 2, 3, or 4 as the effect level.

If you select THEATRE in step 1, and you set the centre mode to PHANTOM (see "Selecting the centre mode" on page 18), skip this step.


EFFECT
4
RETURN
SELECT
SET
EXIT
MENU

4 Press MENU to return to the original screen.

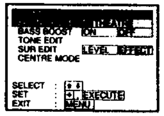
To return to the previous menu

Select RETURN in stead of pressing MENU in step 4, then press EXECUTE.

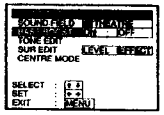
Reinforcing the bass sound for all sound fields

In addition to the other sound effects, you can reinforce the bass sound for all sounds fields including PROLOGIC.

1 Start playing a programme source, then repeat steps 1 through 4 in "Using the pre-programmed sound fields" on page 34 and select one of the sound fields in step 3.

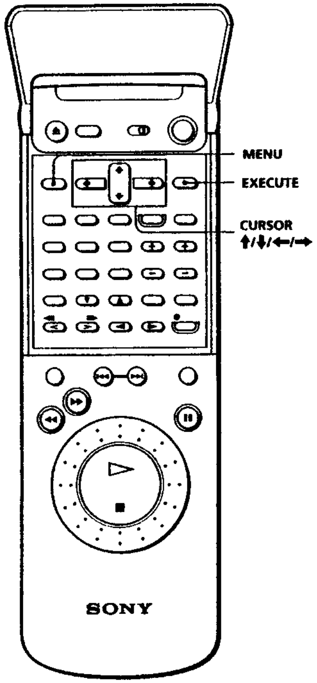

THEATRE
BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
EFFECT
CENTRE MODE
SELECT
SET
EXECUTE
EXIT
MENU

2 Press CURSOR ↑/↓/←/→ to move the cursor (I) to BASS BOOST, then highlight ON.


SOUND FIELD
THEATRE
BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
EFFECT
CENTRE MODE
SELECT
SET
EXIT
MENU

3 Press MENU to return to the original screen.

Reconfiguring the PROLOGIC and THEATRE sound fields

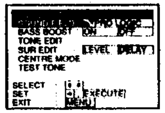

MENU
EXECUTE
CURSOR
↑/↓/←/→
SONY

Tip

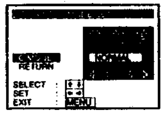
- To adjust the relative volume balance between the front left and right speakers, use BALANCE L/R on the unit.

If you change your speaker configuration, you need to readjust the centre mode and speaker levels for the PROLOGIC and THEATRE sound fields.

1 Repeat steps 1 through 4 in "Using the pre-programmed sound fields" on page 34 and select PROLOGIC or THEATRE in step 3.

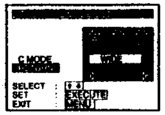

SOUND FIELD
PRO LOGIC
BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
DELAY
CENTRE MODE
TEST TONE
SELECT : ↑ ↓
SET : ← EXECUTE
EXIT : MENU

2 Press CURSOR ↑/↓ to move the cursor (I) to CENTRE MODE, then press EXECUTE.

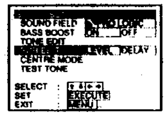

C MODE
RETURN
NORMAL
SELECT : ↑ ↓
SET : ← →
EXIT : MENU

3 Press CURSOR ←/→ to select the centre mode, then press CURSOR ↓ to highlight RETURN.

See "Selecting the centre mode" on page 18.


C MODE
RETURN
WIDE
SELECT : ↑ ↓
SET : EXECUTE
EXIT : MENU

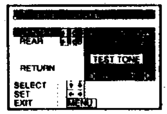
4 Press EXECUTE, then press CURSOR ↑/↓ to highlight TEST TONE.


SOUND FIELD
PRO LOGIC
BASS BOOST
ON
OFF
TONE EDIT
SUR EDIT
LEVEL
DELAY
CENTRE MODE
TEST TONE
SELECT : ↑ ↓ ← →
SET : EXECUTE
EXIT : MENU

5 Press EXECUTE.

Each speaker emits the test tone in turn (the speaker emitting the test tone is indicated by the red speaker mark).

Check each speaker's relative volume balance with the test tones.

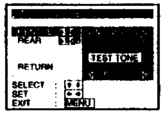

REAR
RETURN
TEST TONE
SELECT : ↑ ↓
SET : ← →
EXIT : MENU

6 Press CURSOR ←/→ to increase or decrease the volume of the centre speaker.

If you selected PHANTOM in step 3, skip this step.

For PROLOGIC sound, you should have an equal volume balance with the other speakers at your listening position.

For THEATRE sound, you can adjust the speaker level as you like.


REAR
RETURN
TEST TONE
SELECT : ↑ ↓
SET : ← →
EXIT : MENU

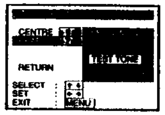
7 Press CURSOR ↑/↓ to move the cursor (I) to REAR, then press CURSOR ←/→ to increase or decrease the volume of the rear speakers.

If you selected 3CH LOGIC in step 3, skip this step.

For PROLOGIC sound, you should have an equal volume balance with the other speakers at your listening position.

For THEATRE sound, you can adjust the speaker level as you like.

The surround speakers' volume balance is always even.


CENTRE
RETURN
TEST TONE
SELECT : ↑ ↓
SET : ← →
EXIT : MENU

8 Press MENU to return to the original screen.

Adjusting the speaker level by listening to the programme source

1. Start playing a programme source, then repeat step 1 through 4 in "Using the pre-programmed sound fields" on page 34 and select PROLOGIC or THEATRE in step 3.
2. Press CURSOR ↑/↓/←/→ to move the cursor (I) to SUR EDIT, then highlight LEVEL.
3. Repeat steps 5 through 8 on the previous page.

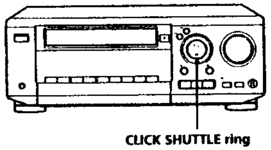
Increasing the maximum rear speaker level

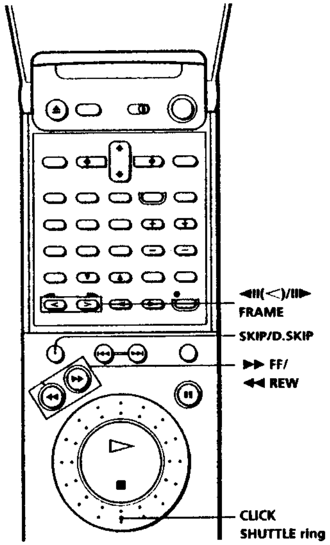
Although the adjustment range of the rear speakers is preset from –15 to +10 dB, you can shift the range up 5 dB (–10 to +15 dB). Hold down MUTING on the unit while turning on the power. "GAIN UP" appears in the display window.

The values for the rear level remain fixed at –15 to +10 dB on the menu, but you will be able to hear the difference in the actual output level.

To reset the rear level adjustment range, repeat this procedure so "GAIN NOR" appears in the display window.

Playing/searching at various speeds


CLICK SHUTTLE ring


◀II(<)/II▶
FRAME
SKIP/D.SKIP
▶▶ FF/
◀◀ REW
CLICK
SHUTTLE ring

Tip

- Adjust the picture using ▼/▲ STILL ADJUST if:
  - Streaks appear while playing in slow motion.
  - Bands appear at the top or bottom while pausing.
  - The picture shakes while pausing.

Notes

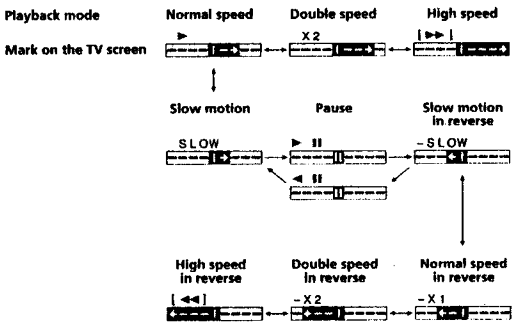
- The playback sound is muted during these modes except for normal speed playback.
- In LP mode, bands may appear or there may be no colour.
- If the playback mode mark doesn't appear on the TV screen, press DISPLAY.

Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, press and hold ▶▶ FF. During rewind, press and hold ◀◀ REW.
Play frame by frame	During pause, lift the top cover of the remote commander and press II▶ FRAME or ◀II FRAME. Hold down either button to play one frame each second.
Play in reverse	During playback, press <.
Skip a scene	During playback, press SKIP/D.SKIP. Pressing once skips about 30 seconds.

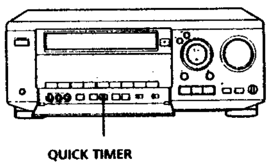
Using the CLICK SHUTTLE ring

With the CLICK SHUTTLE ring, you can operate a variety of playback options.

During playback or pause, turn the CLICK SHUTTLE ring clockwise or anticlockwise. Each change in the CLICK SHUTTLE ring position changes the playback mode, and the corresponding mark appears on the TV screen for a few seconds in the following way if the on-screen display function is on:


Playback mode
Mark on the TV screen
Normal speed
▶
Double speed
X 2
High speed
[▶▶]
Slow motion
SLOW
Pause
▶ II
◀ II
Slow motion in reverse
-SLOW
High speed in reverse
[◀◀]
Double speed in reverse
-X 2
Normal speed in reverse
-X 1

Recording TV programmes using the quick timer


QUICK TIMER

Tips

- You can also set the quick timer and start recording during stop mode. In this case, the unit must be turned on before you start recording.
- You can turn off the unit while recording with the quick timer. This doesn't affect the quick timer recording.
- You can enjoy watching or listening to another input source even during quick timer recording.

Note

- You can use the quick timer only for recording TV programmes from the unit's VCR tuner or LINE input source.

After you start recording a TV programme from the unit's VCR tuner, or a satellite tuner connected to the LINE jacks in the normal way, you can have the unit's VCR stop recording automatically after a specified duration.

1 While recording, press QUICK TIMER once.

2 Press QUICK TIMER repeatedly to set the duration.

Each press advances the time in 30 minute increments.

→ 0:00 → 0:30 → 1:00 ----→ 10:30 → 11:00

The duration decreases minute by minute to 0:00, then the unit's VCR stops recording and turns off automatically.

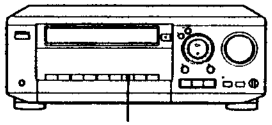
To extend the duration

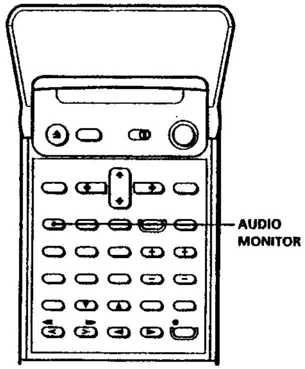
Press QUICK TIMER repeatedly to set to the new duration.

To stop recording

To stop the unit's VCR while recording, press TIMER REC ON/OFF.

Recording stereo and bilingual programmes


AUDIO MONITOR


AUDIO MONITOR

Notes
- If the AUDIO MONITOR button does not function, check that AUDIO MIX in the SET UP MENU is set to OFF.
- If HIFI AUDIO is set to STD, the standard sound will be recorded on both the hi-fi and normal audio tracks. Pressing AUDIO MONITOR will not change the sound.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.

In the NICAM system

This unit receives and records stereo and bilingual programmes based on the NICAM system (the NICAM indicator appears). When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To record a NICAM programme, HIFI AUDIO in the SET UP MENU should be set to NICAM (initial setting). To check the menu setting, see page 76.

To select the sound while recording

Press AUDIO MONITOR to select the sound you want.

Stereo programmes

To listen to	Display window	On-screen display
Stereo sound	STEREO	STEREO
Standard sound*	No indicator	No indicator

* Usually the mixed sound of the left and right channels (monaural)

Bilingual programmes

To listen to	On-screen display	Display window
Main sound	MAIN	STEREO
Sub sound	SUB	STEREO
Main and sub sounds	MAIN/SUB	STEREO
Standard sound*	No indicator	No indicator

* Usually the main sound (monaural)

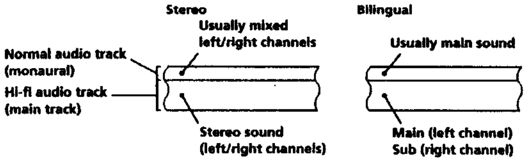
Selecting the sound during playback

Press AUDIO MONITOR to select the sound you want.

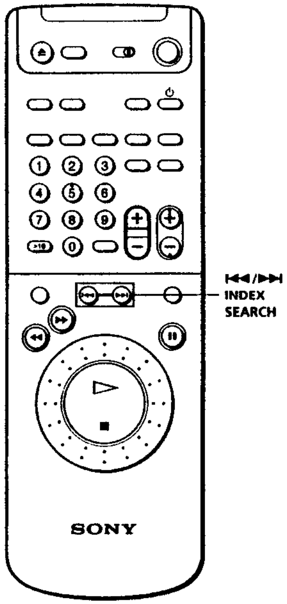
To listen to	On-screen display	Display window
Stereo/main and sub sounds (left and right channels)	STEREO	STEREO
Left channel/main sound	LCH	STEREO
Right channel/sub sound	RCH	STEREO
Standard sound	No indicator	No indicator

How sound is recorded on a video tape

The unit's VCR records sound onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.


Stereo
Bilingual
Usually mixed left/right channels
Usually main sound
Normal audio track (monaural)
Hi-fi audio track (main track)
Stereo sound (left/right channels)
Main (left channel)
Sub (right channel)

Searching using the index function

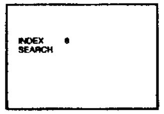


Note

- No index signal will be added when recording starts from recording pause. However, an index signal will be marked if you change the channel during recording pause.

The unit's VCR marks the tape with an index signal at the point where each recording begins. Use these signals as references to find a specific recording. The unit's VCR can search up to 99 index signals ahead of or behind the current position.

1 Insert an indexed tape into the unit.
2 Press ◄◄ / ►► INDEX SEARCH repeatedly to specify how many index signals ahead or behind you want to search:
   - To search ahead, press ►► INDEX SEARCH.
   - To search behind, press ◄◄ INDEX SEARCH.

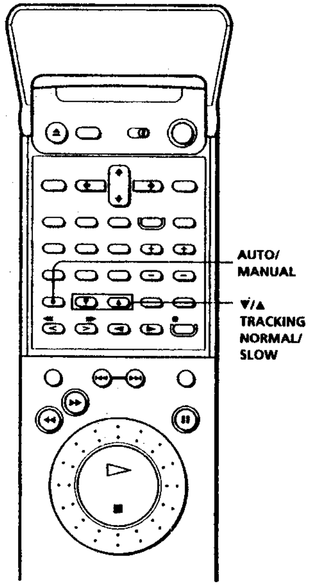


The unit's VCR starts searching and the index number on the TV screen counts down to zero. Playback starts automatically from that point.

To stop searching

Press ■ STOP.

Adjusting the picture



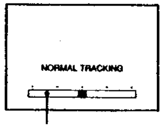
Notes

- You can adjust the tracking for NTSC-recorded tapes but the tracking meter won't be displayed.
- There is a delay of a few seconds before the unit's VCR actually starts recording while the unit's VCR analyses the tape. To avoid the delay, first set the unit's VCR to recording pause (the OPC indicator flashes slowly) and press ● REC to have the unit's VCR analyse the tape (the OPC indicator flashes rapidly). After the OPC indicator stops flashing, press ❚❚ PAUSE to start recording immediately. If you want to start recording quickly without using the OPC function, first set the unit's VCR to recording pause (the OPC indicator flashes slowly) and press ❚❚ PAUSE to start recording.

Adjusting the tracking

Although the unit's VCR automatically adjusts the tracking when playing a tape (the AUTO TRACKING indicator flashes in the display window, then lights steadily), distortion may occur if the tape was poorly recorded. If picture distortion occurs, manually adjust the tracking.

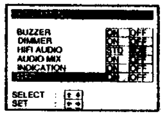
Press ▼/▲ TRACKING NORMAL/SLOW to display the tracking meter. The distortion should disappear as you press one of the two buttons. If you cannot get a clear picture with manual adjustment, press TRACKING AUTO/MANUAL to return to automatic adjustment.



Tracking meter

About Optimum Picture Control (OPC)

Optimum Picture Control (OPC) automatically improves recording and playback quality by adjusting the unit's VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you set OPC to ON in the SET UP MENU (with the OPC indicator in the display window lit).



BUZZER ON OFF
DIMMER ON OFF
HIFI AUDIO STD HIFI
AUDIO MIX ON OFF
INDICATION ON OFF
OPC ON OFF

OPC playback

The OPC function automatically works on all types of tapes, including rental tapes and tapes that were not recorded with OPC.

OPC recording

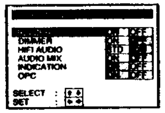
Whenever you insert a tape and first start recording, the unit's VCR adjusts to the tape using the OPC function (the OPC indicator flashes rapidly). This adjustment remains in effect until the tape is ejected.

To deactivate the OPC

Press MENU and select SET UP MENU, then set OPC to OFF. The OPC indicator in the display window goes off.

Changing menu options

1 Press MENU, then select SET UP MENU.



2 Press CURSOR ↑/↓ to select the option to change, then press CURSOR ←/→ to change the setting.

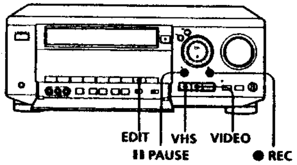
3 Press EXECUTE to return to the original screen.

Menu choices

Initial settings are indicated in bold print.

Menu option	Set this option to
BUZZER	**ON** to emit a beep tone when an incorrect operation is made. OFF to deactivate buzzer.
DIMMER	ON to make the display window dim, **OFF** to make it brighter.
HIFI AUDIO	STD to record standard sound on the hi-fi audio track. **NICAM** to record NICAM broadcasts on the hi-fi audio track. For details, see page 72.
AUDIO MIX	ON to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button will not function. **OFF** to listen to the hi-fi and normal audio tracks separately. Select the sound using the AUDIO MONITOR button. For details, see page 72.
INDICATION	**ON** to display the operational function and selected sound field for a few seconds in the display window. OFF to display only the indication selected with the STATUS button on the unit. For details, see page 33.
OPC	**ON** to switch on the OPC (Optimum Picture Control) function and improve the picture quality, OFF to switch off OPC. For details, see page 75.

Recording from another VCR or LD player



Tips

- To cut out unwanted scenes while editing, press ❚❚ PAUSE on the unit when an unwanted scene begins. When it ends, press ❚❚ PAUSE again to resume recording (Assemble Editing).
- You can record audio sound from the desired input source on the video tape by pressing AUDIO repeatedly in step 4.

Note

- If you follow this procedure to start recording, the unit's VCR won't record with the OPC function. To record a tape with the OPC function, press ● REC again during recording pause in step 2 so the unit's VCR analyses the tape. Then when you start recording in step 6, press ❚❚ PAUSE after the OPC indicator stops flashing. If you press ❚❚ PAUSE before the OPC indicator stops flashing, the OPC function is cancelled.

Before you start editing

- Connect another VCR or LD player to the unit referring to the connections on page 10 and 12.
- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually. Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.
- Press TAPE SPEED to select the tape speed, SP or LP.
- On this unit, press EDIT so "EDIT" appears in the display window. If the other VCR has a similar switch, set it to ON as well.
- Do not use the remote commander in the following procedure.

1 Insert a tape with its safety tab in place into the unit (recording VCR).

Search for the point to start recording and press ❚❚ PAUSE.

2 Press ● REC on the unit to set it to recording pause.

3
- **Insert a source tape with its safety tab removed into the other (playback) VCR when recording from another VCR.**
- **Insert an LD into the LD player, when recording from an LD player.**

4 Press VIDEO or VHS repeatedly to select the input (playback) source (VIDEO1, VIDEO2, or LINE).

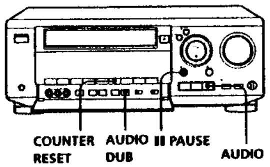
5 Search for the point to start playback and set it to playback pause.

6 To start editing, press ❚❚ PAUSE on this unit and release the pause mode on the other equipment at the same time.

To stop editing

Press the ■ STOP buttons on both units.

Audio dubbing



This feature lets you record over the normal audio track. The monaural sound previously recorded is replaced while the original hi-fi sound remains unchanged. Use this feature to add music to a tape you have recorded with a camcorder.

Before you start dubbing...

- Press VHS TUNER.
  - If the TV doesn't turn on, turn it on manually. Press VHS TUNER again if connected with a EURO-AV (Scart) cable.
  - If connected with a EURO-AV (Scart) cable, the TV is automatically set to VCR reception.
  - If connected with only the antenna cable, set the TV to the VCR's programme position manually.
- Do not use the remote commander in the following procedure.

---

1 **Insert a prerecorded tape with its safety tab in place into this (recording) VCR.**

Search for the end of the section to be dubbed and press II PAUSE.

---

2 **Press COUNTER RESET on this unit to reset the counter to "0H00M00S."**

---

3 **Rewind the prerecorded tape to the beginning of the section to be dubbed.**

The unit's VCR pauses.

---

4 **Insert a source tape, MD, CD, etc. into the playback component connected to the unit.**

---

5 **Press AUDIO repeatedly to select the input (playback) source.**

---

6 **Search for the point to start playback and set it to playback pause.**

---

7 **Press AUDIO DUB.**

The audio dubbing indicator ⊖ appears in the display window.

---

8 **To start editing, press II PAUSE on the unit and release the pause mode of the playback equipment at the same time.**

When the counter reaches "0H00M00S," audio dubbing stops automatically.

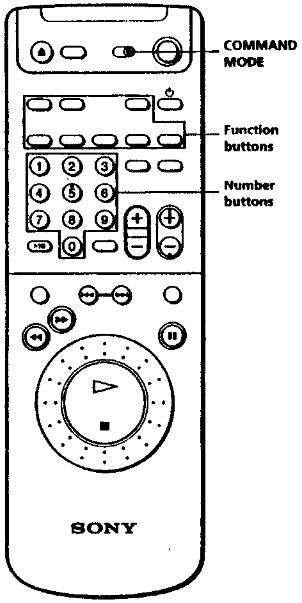
To stop while editing

Press the ■ STOP buttons on the unit and the playback equipment.

To listen to both the hi-fi and normal audio

Set AUDIO MIX to ON in the SET UP MENU (page 76). Use this feature to listen to the dubbed audio as well as the original hi-fi audio. When AUDIO MIX is set to ON, the AUDIO MONITOR button does not function. Remember to reset AUDIO MIX to OFF after playing the tape.

Customizing the remote commander function buttons



Notes

- You cannot customize the VHS TUNER, VHS LINE, and TUNER function buttons.
- The COMMAND MODE selectors on both the remote commander and unit (the actual selector's name on the unit is VTR COMMAND MODE) are factory set to VTR3.

The function buttons on the remote commander have two roles. One is to select the input sources (see "Selecting the equipment" on page 44) and the other is to switch the remote commander to operate the selected piece of equipment. The function buttons are factory set for the unit's VCR, a radio tuner, CD player, cassette deck (deck B for double-cassette decks), and TV connected to the source inputs. If you want to control other piece of equipment or restore the factory settings, you need to customize the function buttons. For detailed customizing explanations, see the sections for controlling each piece of equipment (see pages 47 through 60). This section shows you the factory settings of, and the way to customize, the remote commander function buttons.

Factory set functions

Press	Then, the remote commander operates
VHS TUNER*	The unit's VCR (The COMMAND MODE selector determines the controllable VCR.)
VHS LINE*	Same as above
VIDEO 1	Same as above
VIDEO 2	Same as above
TUNER*	A radio tuner
CD	A CD player
TAPE/MD	A single cassette deck or deck B of a double-cassette deck
TV	A TV

* You cannot customize this function button.

To customize the function buttons

To control	While pressing one of the function buttons, press
A CD player	1
A DAT deck	2
An MD deck	3
A single cassette deck or Deck B of a double-cassette deck	4
A single cassette deck or Deck A of a double-cassette deck	5
An LD player	6
A VCR if its COMMAND MODE position/format is	
VTR1/Betamax	7
VTR2/8mm	8
VTR3/VHS	9
A TV	0

To restore the factory settings for all the function buttons

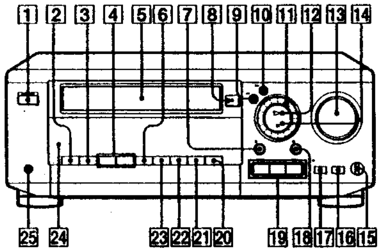
Remove the batteries from the remote commander, and insert the batteries again.

To restore the factory settings for VIDEO1 or VIDEO2

See "To relate VIDEO1 or VIDEO2 with COMMAND MODE again" on page 48.

Index to parts and controls

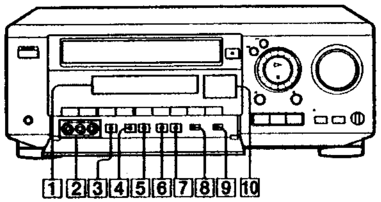
Front panel



1 ON/STANDBY switch/indicator (13)
2 TV/VTR button (31)
3 TAPE SPEED button (35)
4 PROGRAM +/– buttons (13)
5 Tape compartment (32)
6 TAPE RETURN button (33)
7 ❚❚ PAUSE button (77, 78)
8 ⏏ EJECT button (32)
9 ◀◀ REW button (32)
10 ▶▶ FF button (32)
11 CLICK SHUTTLE ring (70)
12 ▷ PLAY button (32)
13 MASTER VOLUME control/indicator (32, 33)
14 ■ STOP button (77, 78)
15 BALANCE L/R control (17, 68)
16 MUTING button (33)
17 SURROUND button/indicator (61, 64)
18 ● REC button (77)
19 FUNCTION buttons (45, 53, 56, 58, 77, 78)
20 STATUS button (33)
21 EDIT button (77)
22 AUDIO MONITOR button (72, 76)
23 COUNTER RESET button (33, 78)
24 Remote sensor (5)
25 PHONES jack (9)

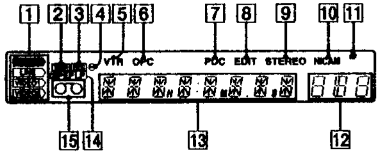
continued

Front panel, with cover opened



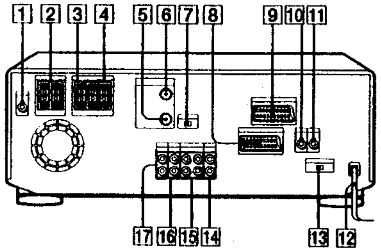
1 Display window (33)
2 VIDEO 2 INPUT VIDEO/AUDIO L/R jacks (12)
3 EASY SET UP button (14)
4 TIMER REC button (38)
5 QUICK TIMER button (71)
6 RF CHANNEL button (13)
7 AUDIO DUB button (78)
8 STANDBY DISPLAY ON/OFF switch (12)
9 VTR COMMAND MODE OFF/1/2/3 selector (47)
10 Tape operation indicators

Display window



1 Video input indicators (45)
2 TIMER indicator (38, 41, 71)
3 REC indicator (71)
4 ⊖ (audio dubbing) indicator (78)
5 VTR indicator (14, 30, 31)
6 OPC indicator (75, 76)
7 PDC indicator (41)
8 EDIT indicator (77)
9 STEREO indicator (72)
10 NICAM indicator (72)
11 RF indicator (13)
12 RF channel (13)/line/programme position indicator (35)
13 Time counter/clock/operating function/sound field indications (33)
14 Tape speed indicators (35)
15 ▭ (tape) indicator

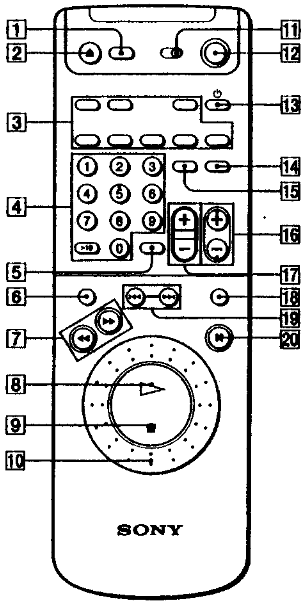
Rear panel



1 MIX OUT jack (9)
2 FRONT SPEAKERS L/R connectors (8)
3 SURROUND SPEAKERS REAR L/R connectors (9)
4 SURROUND SPEAKERS CENTRE connectors (8)
5 AERIAL IN connector (6)
6 AERIAL OUT connector (6)
7 RF MODULATOR ON/OFF switch (6)
8 EURO LINE IN connector (30)
9 VIDEO OUT (EURO-AV) connector (6, 30)
10 MONITOR VIDEO OUT jack (10)
11 VIDEO 1 IN VIDEO jack (10)
12 Mains lead (11)
13 NTSC PB switch (32)
14 VIDEO 1 IN AUDIO L/R jacks (10)
15 TAPE/MD REC OUT/IN AUDIO L/R jacks (10)
16 CD IN AUDIO L/R jacks (10)
17 TUNER IN AUDIO L/R jacks (10)

continued

Remote commander



1 TV CONTROL ON button (50)

2 ≜ EJECT button (32)

3 SYSTEM CONTROL/FUNCTION buttons (44~60, 80)

4 Number/-/-- (ten's digit) (35, 49)/>10 (52, 57, 60)/ SHIFT (51) buttons

5 ENTER/RMS/START button (38)

6 SKIP/D.SKIP button (52, 70)

7 ◀◀ REW/▶▶ FF buttons (32, 52, 53, 55, 57, 59, 70)

8 ▷ PLAY button (32, 52, 55, 57, 59)

9 ■ STOP button (32, 52, 53, 55, 57, 59)

10 CLICK SHUTTLE ring (70)

11 COMMAND MODE VTR1/2/3 selector (47, 80)

12 SYSTEM OFF button (46)

13 ⏻ button (48, 50, 60)

14 TV/VIDEO button (50)

15 VIDEO Plus+ button (22)

16 PROG/PRESET +/– buttons (20, 51)

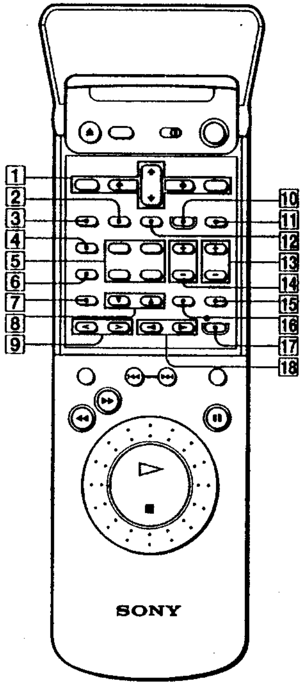
17 MASTER VOL +/– buttons (32, 46)

18 MUTING button (33, 46)

19 |◀◀/▶▶| INDEX SEARCH (74)/AMS (52, 55, 57, 59) buttons

20 ❚❚ PAUSE button (32, 52, 53, 56, 57, 59)

Remote commander, with top cover opened



1 MENU/CURSOR ↑/↓/←/→/EXECUTE buttons (15, 19)

2 DISPLAY button (33)

3 AUDIO MONITOR button (72, 76)

4 ⊜ (Teletext) button (49)

5 FASTEXT buttons (49)

6 COUNTER RESET (33)/○ (Teletext off) (49) button

7 TRACKING AUTO/MANUAL (75)/ANALOG/□■ (CX) (60) button

8 ▼/▲ TRACKING NORMAL/SLOW (75)/▼/▲ STILL ADJUST (70) buttons

9 ◀❚❚/❚❚▶ FRAME buttons (60, 70)

10 TIMER REC ON/OFF button (38, 41)

11 TIMER CLEAR button (38, 42)

12 TV WIDE button (49)

13 PROG +/–/⊜/⊜ (Teletext up/down) (49) buttons

14 TV VOL +/– buttons (50)

15 TAPE SPEED (SP/LP) button (35)

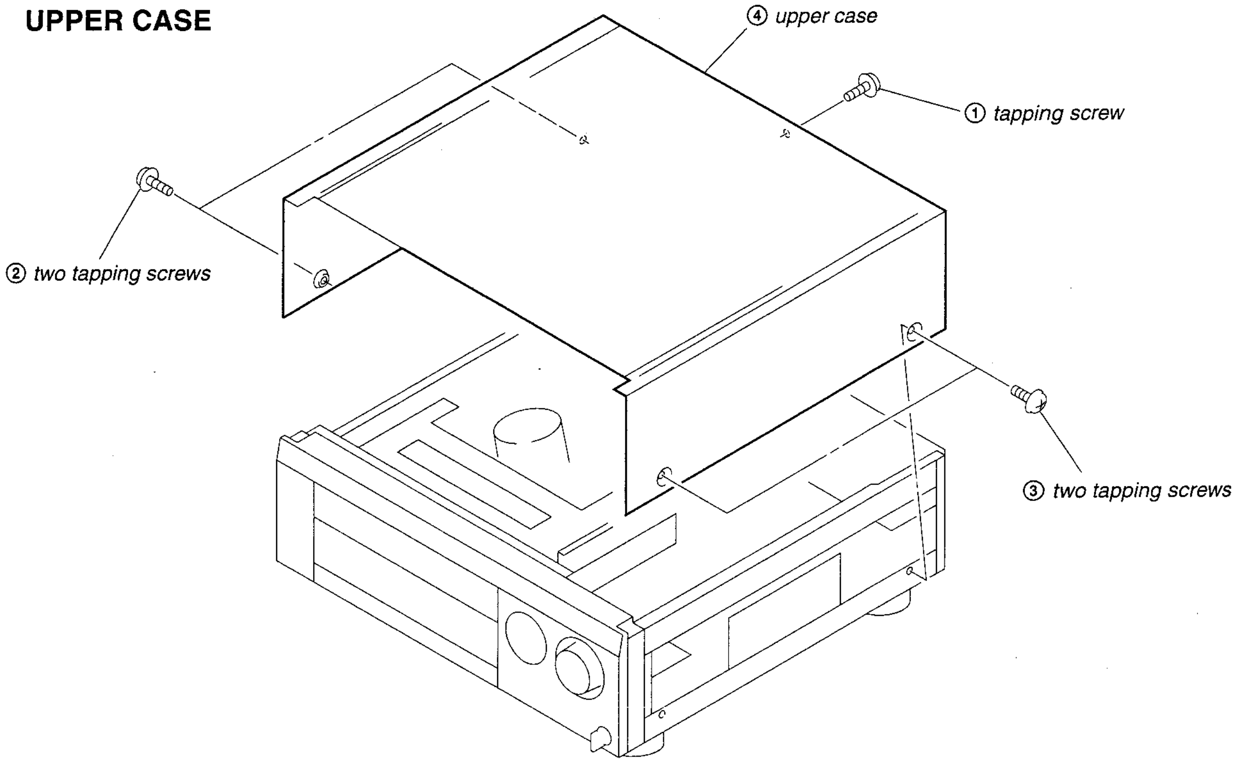
16 STATUS button (33)

17 ● REC button (35, 54, 56, 58)

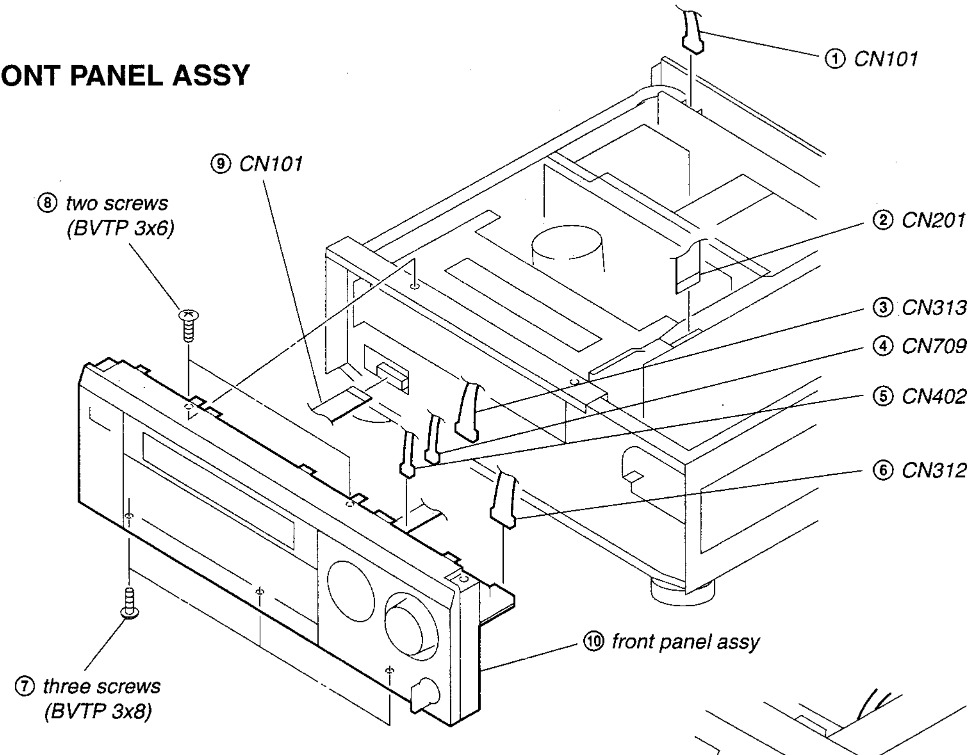
18 ◀/▶ DIRECTION (53, 58, 60)/▶ SIDE A/◀ SIDE B (59) buttons

SECTION 2
DISASSEMBLY

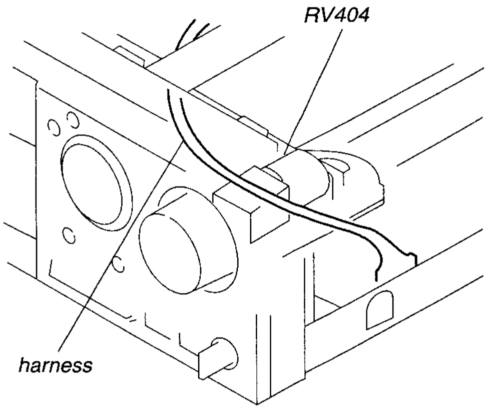
2-1. UPPER CASE


④ upper case
① tapping screw
② two tapping screws
③ two tapping screws

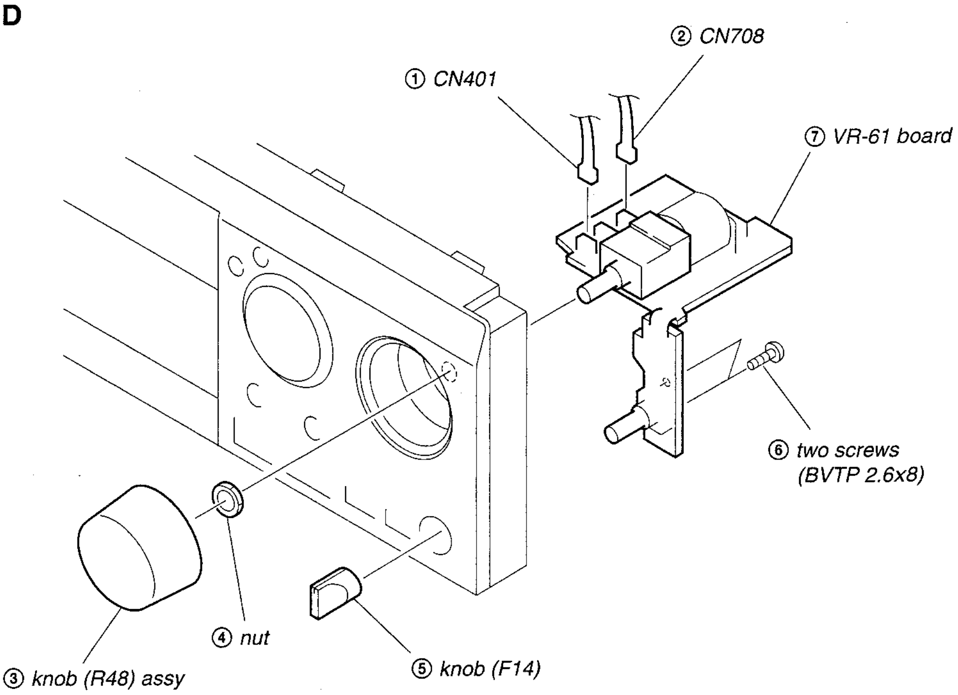
2-2. FRONT PANEL ASSY


① CN101
⑨ CN101
⑧ two screws
(BVTP 3x6)
② CN201
③ CN313
④ CN709
⑤ CN402
⑥ CN312
⑩ front panel assy
⑦ three screws
(BVTP 3x8)

- Note for mounting of the front panel.
  The harness should be positioned as given in the figure.

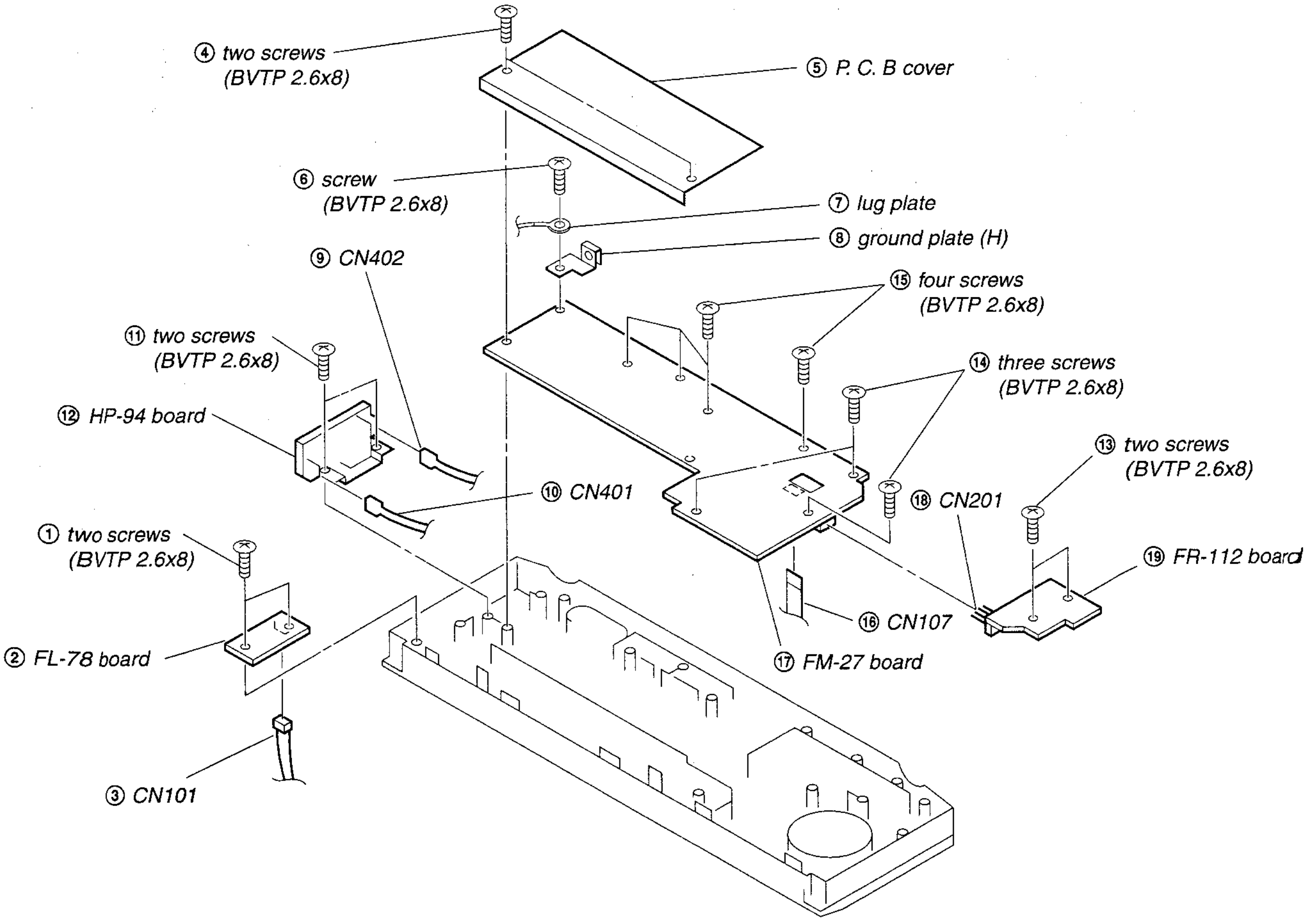

RV404
harness

2-3. VR-61 BOARD



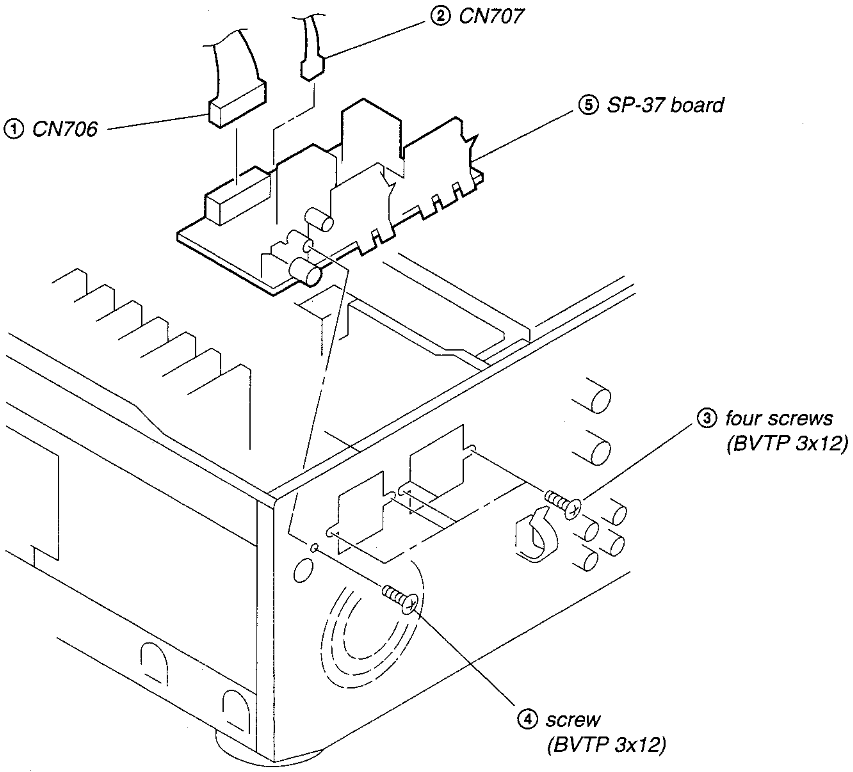
② CN708
① CN401
⑦ VR-61 board
⑥ two screws
(BVTP 2.6x8)
④ nut
③ knob (R48) assy
⑤ knob (F14)

2-4. FM-27 BOARD

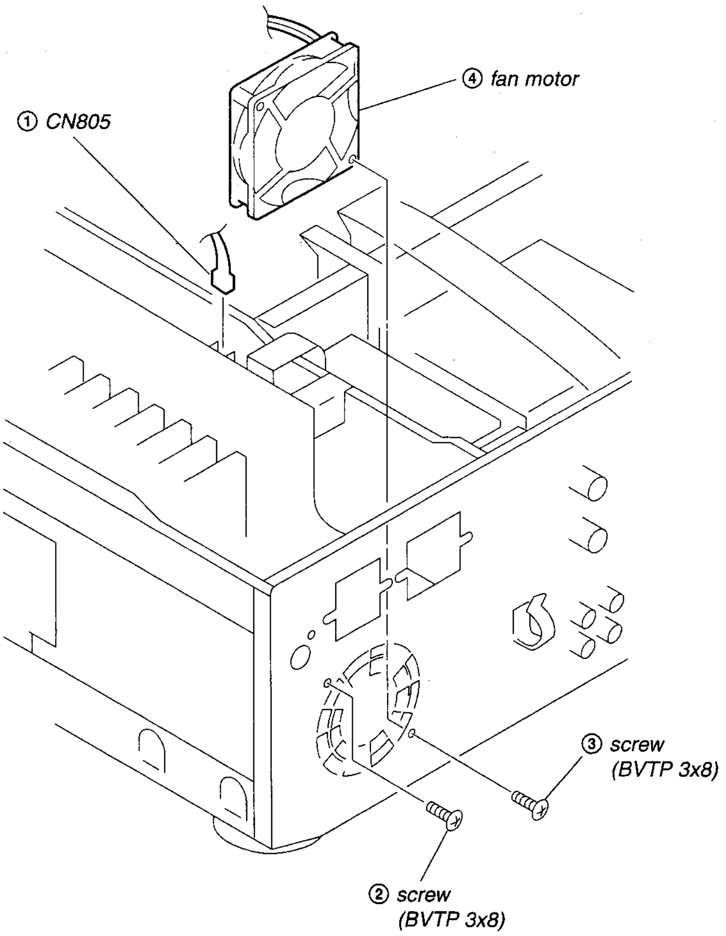


④ two screws
(BVTP 2.6x8)
⑤ P. C. B cover
⑥ screw
(BVTP 2.6x8)
⑦ lug plate
⑧ ground plate (H)
⑨ CN402
⑮ four screws
(BVTP 2.6x8)
⑪ two screws
(BVTP 2.6x8)
⑭ three screws
(BVTP 2.6x8)
⑫ HP-94 board
⑬ two screws
(BVTP 2.6x8)
⑩ CN401
⑱ CN201
① two screws
(BVTP 2.6x8)
⑲ FR-112 board
⑯ CN107
② FL-78 board
⑰ FM-27 board
③ CN101

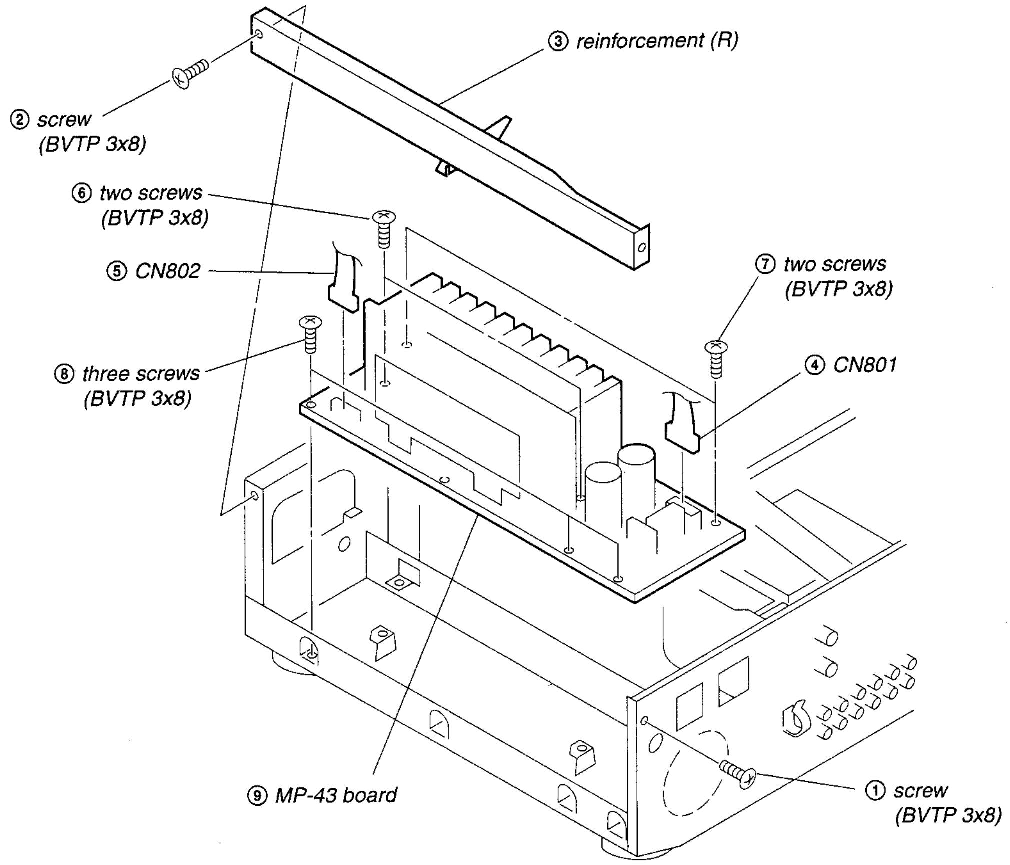
2-5. SP-37 BOARD


② CN707
⑤ SP-37 board
① CN706
③ four screws
(BVTP 3x12)
④ screw
(BVTP 3x12)

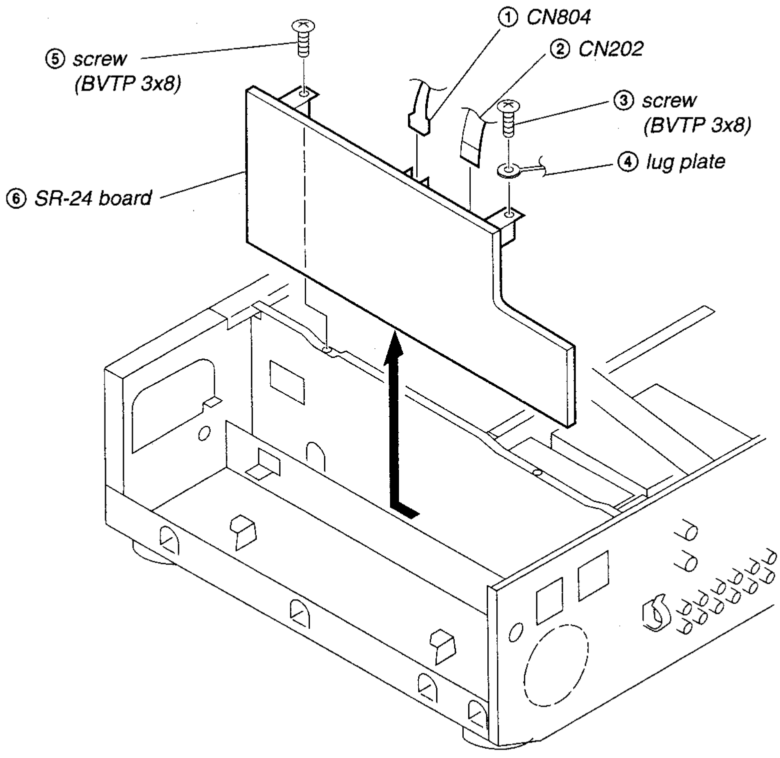
2-6. FAN MOTOR


④ fan motor
① CN805
③ screw
(BVTP 3x8)
② screw
(BVTP 3x8)

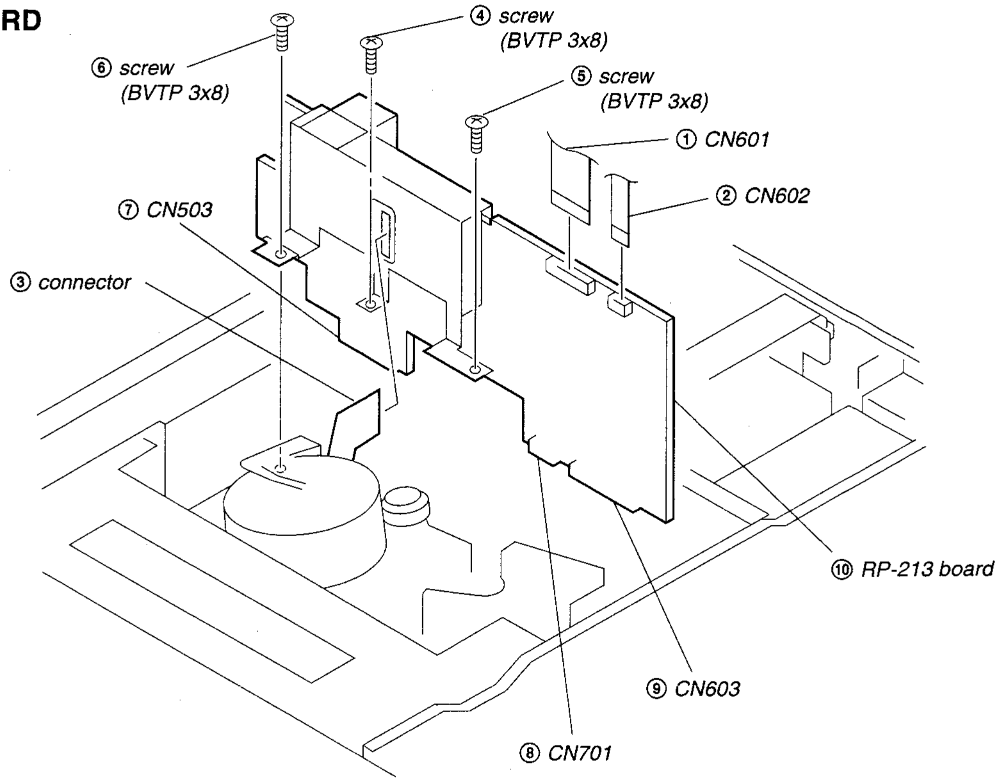
2-7. MP-43 BOARD


③ reinforcement (R)
② screw
(BVTP 3x8)
⑥ two screws
(BVTP 3x8)
⑤ CN802
⑦ two screws
(BVTP 3x8)
④ CN801
⑧ three screws
(BVTP 3x8)
⑨ MP-43 board
① screw
(BVTP 3x8)

2-8. SR-24 BOARD

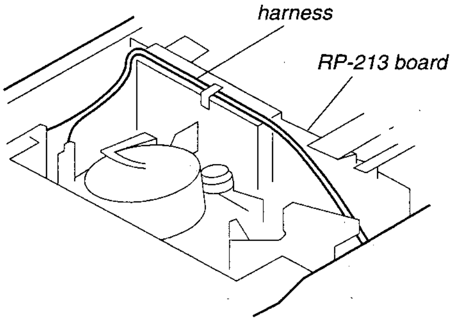

① CN804
② CN202
⑤ screw
(BVTP 3x8)
③ screw
(BVTP 3x8)
④ lug plate
⑥ SR-24 board

2-9. RP-213 BOARD



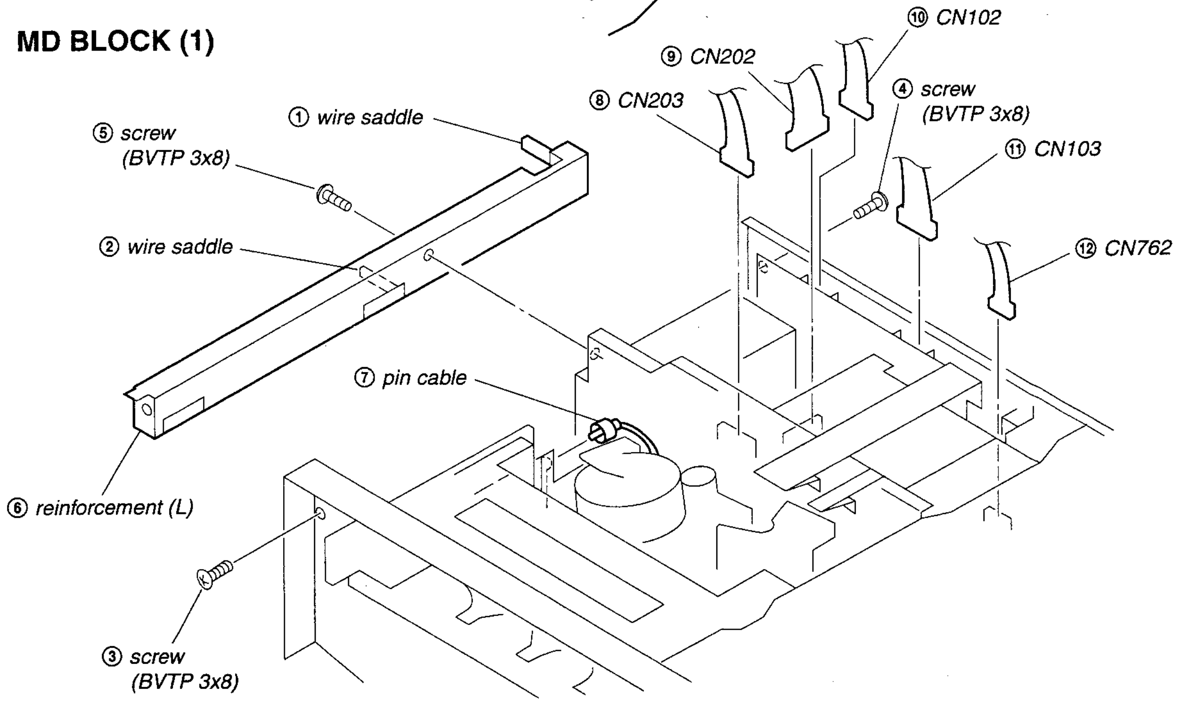
⑥ screw (BVTP 3x8)
④ screw (BVTP 3x8)
⑤ screw (BVTP 3x8)
① CN601
② CN602
⑦ CN503
③ connector
⑩ RP-213 board
⑨ CN603
⑧ CN701

- Note for mounting of the RP-213 board. The harness should be positioned as given in the figure.



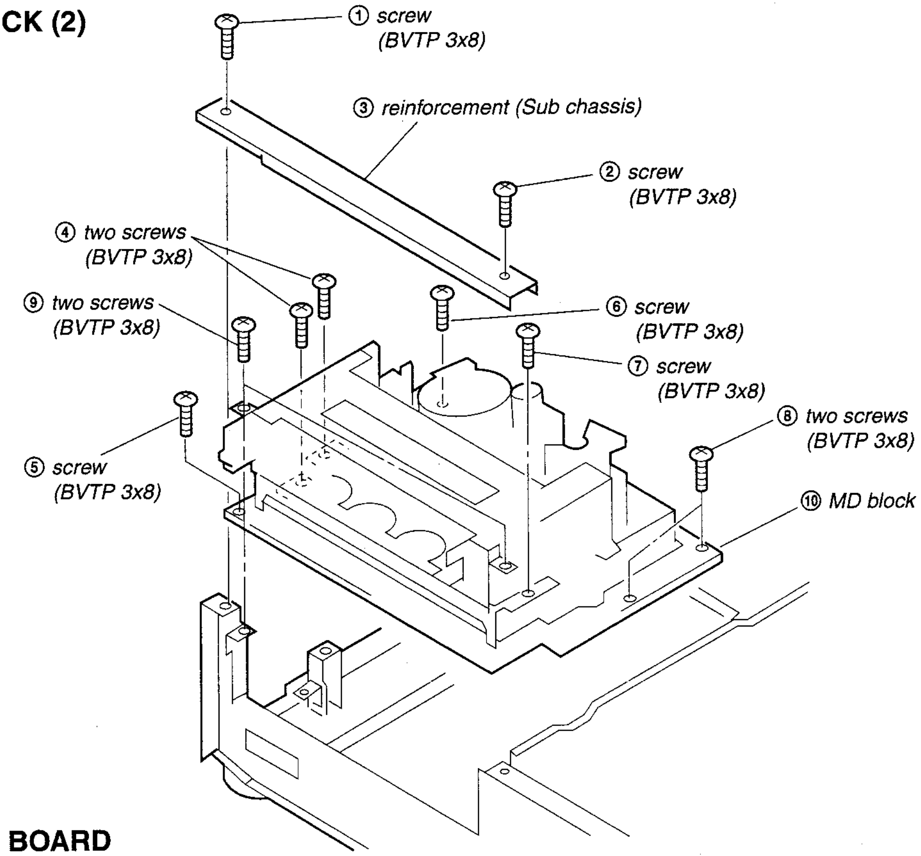
harness
RP-213 board

2-10. MD BLOCK (1)



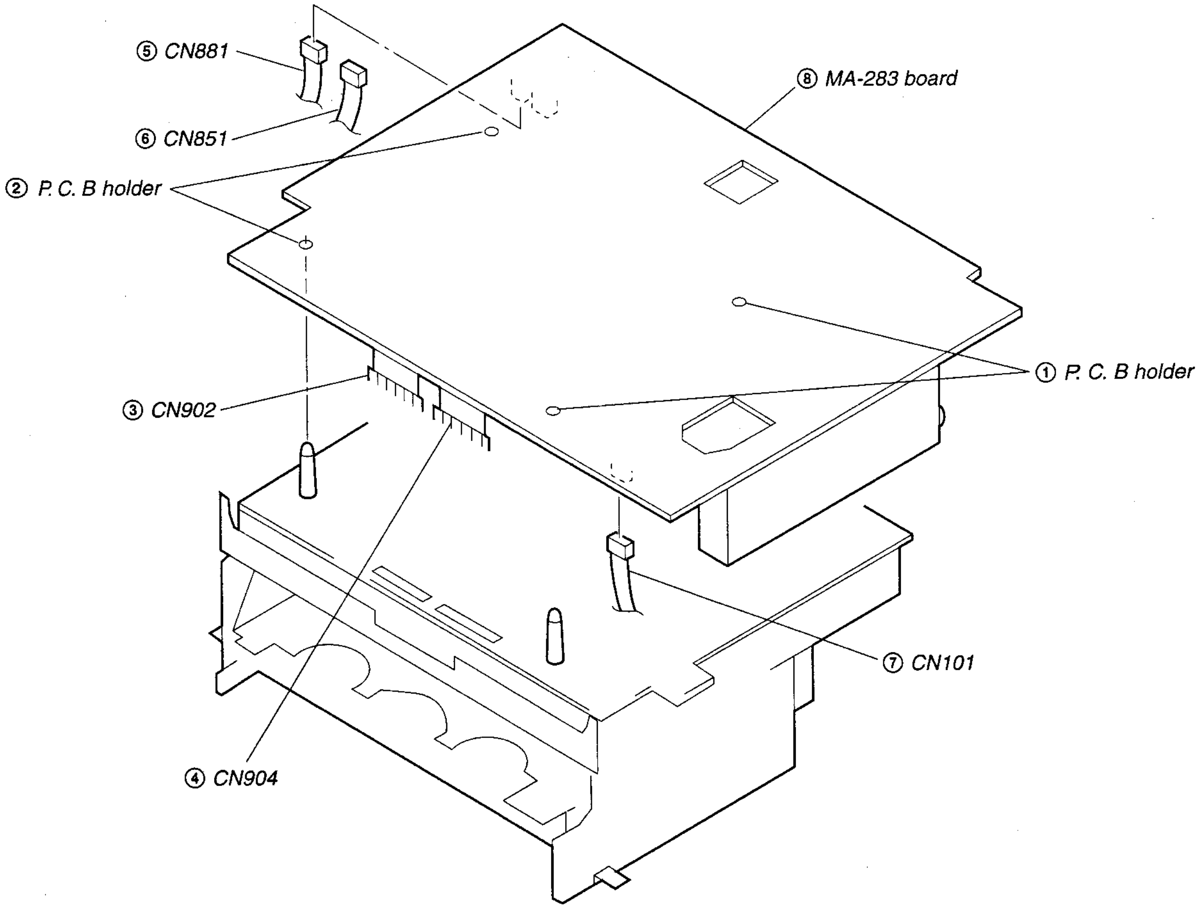
⑩ CN102
⑨ CN202
⑧ CN203
④ screw (BVTP 3x8)
⑪ CN103
⑫ CN762
① wire saddle
⑤ screw (BVTP 3x8)
② wire saddle
⑦ pin cable
⑥ reinforcement (L)
③ screw (BVTP 3x8)

2-11. MD BLOCK (2)



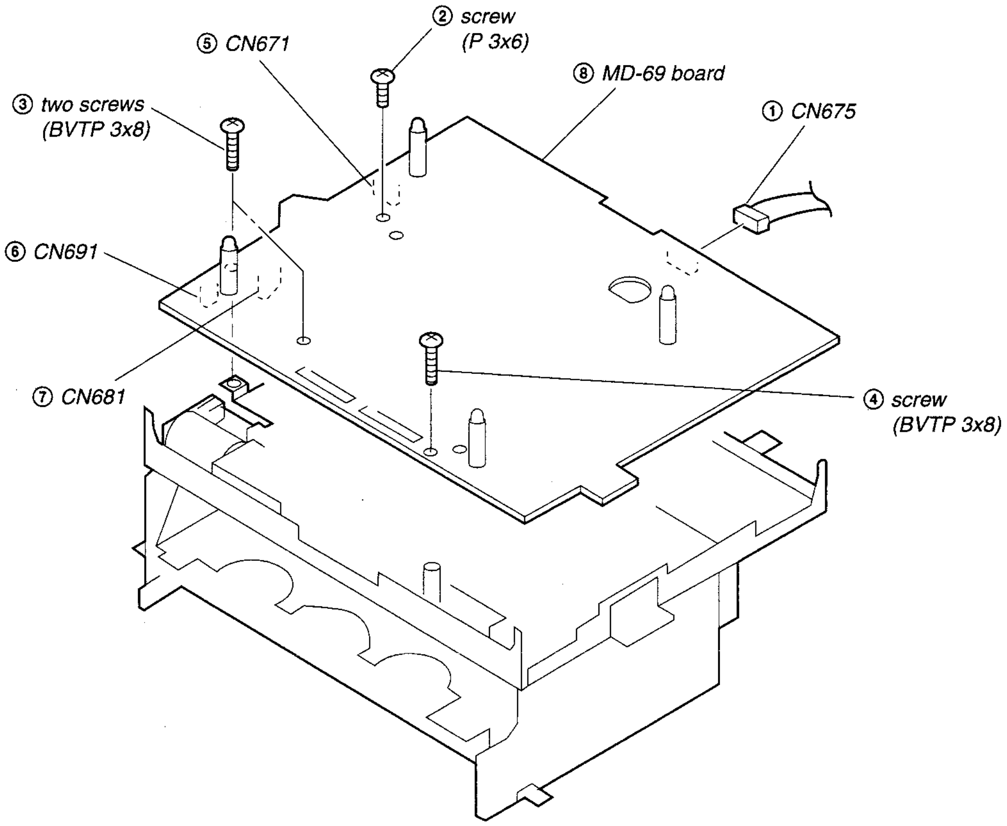
① screw
(BVTP 3x8)
③ reinforcement (Sub chassis)
② screw
(BVTP 3x8)
④ two screws
(BVTP 3x8)
⑨ two screws
(BVTP 3x8)
⑥ screw
(BVTP 3x8)
⑦ screw
(BVTP 3x8)
⑧ two screws
(BVTP 3x8)
⑤ screw
(BVTP 3x8)
⑩ MD block

2-12. MA-283 BOARD

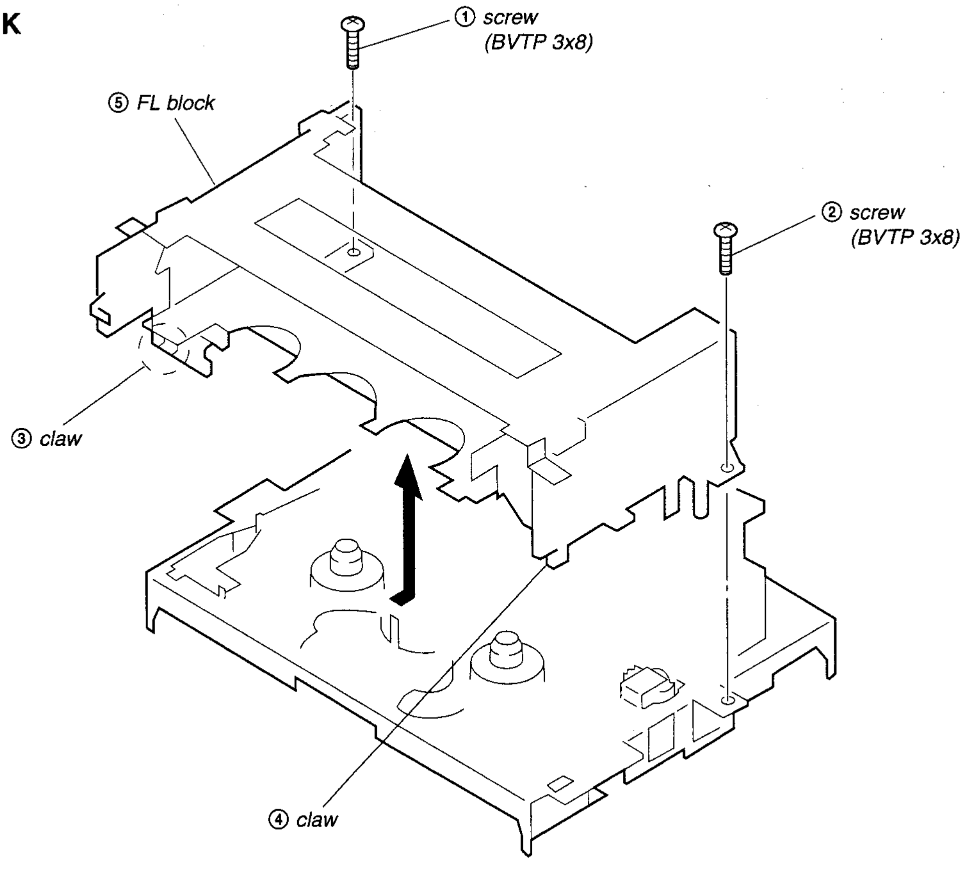


⑤ CN881
⑧ MA-283 board
⑥ CN851
② P. C. B holder
① P. C. B holder
③ CN902
⑦ CN101
④ CN904

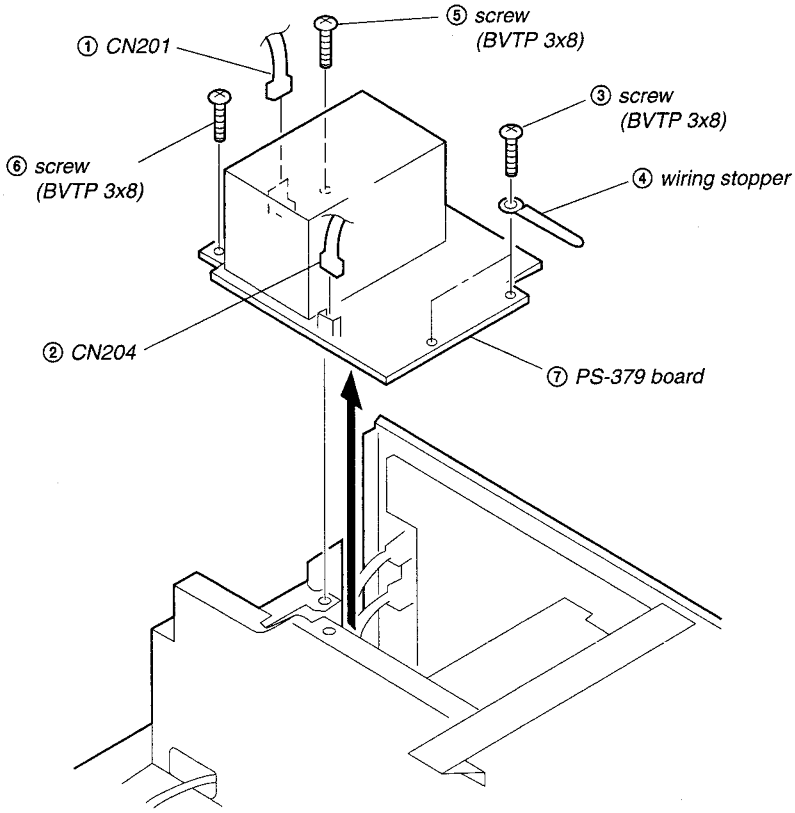
2-13. MD-69 BOARD


② screw
(P 3x6)
⑤ CN671
⑧ MD-69 board
③ two screws
(BVTP 3x8)
① CN675
⑥ CN691
⑦ CN681
④ screw
(BVTP 3x8)

2-14. FL BLOCK

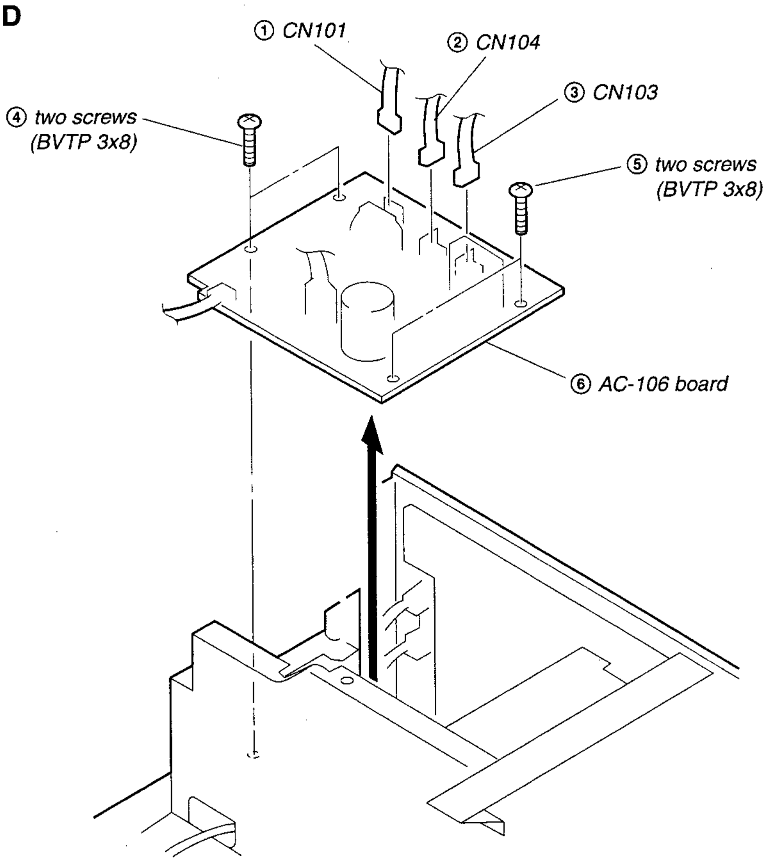

① screw
(BVTP 3x8)
⑤ FL block
② screw
(BVTP 3x8)
③ claw
④ claw

2-15. PS-379 BOARD



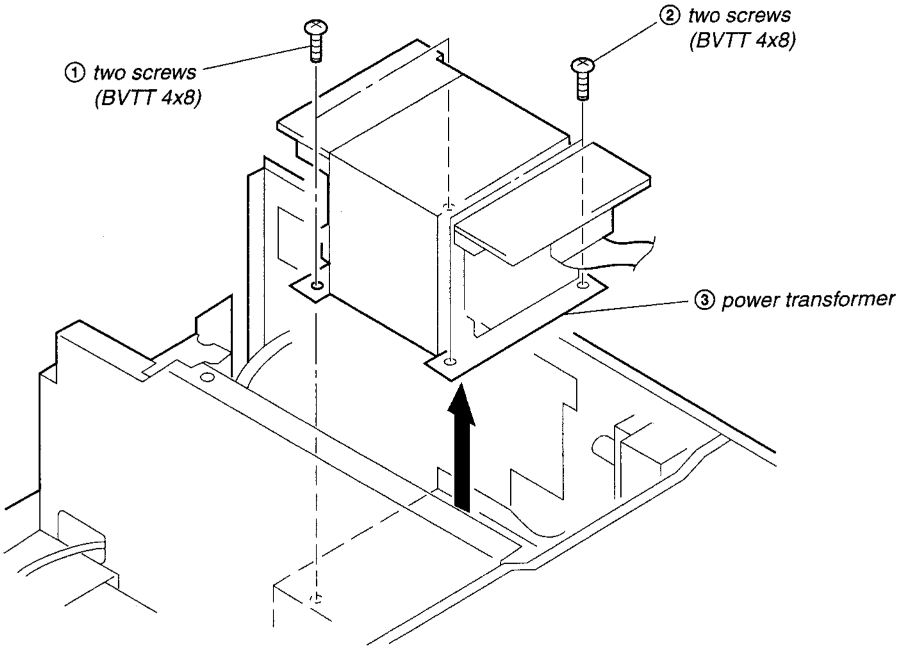
⑤ screw (BVTP 3x8)
① CN201
③ screw (BVTP 3x8)
⑥ screw (BVTP 3x8)
④ wiring stopper
② CN204
⑦ PS-379 board

2-16. AC-106 BOARD

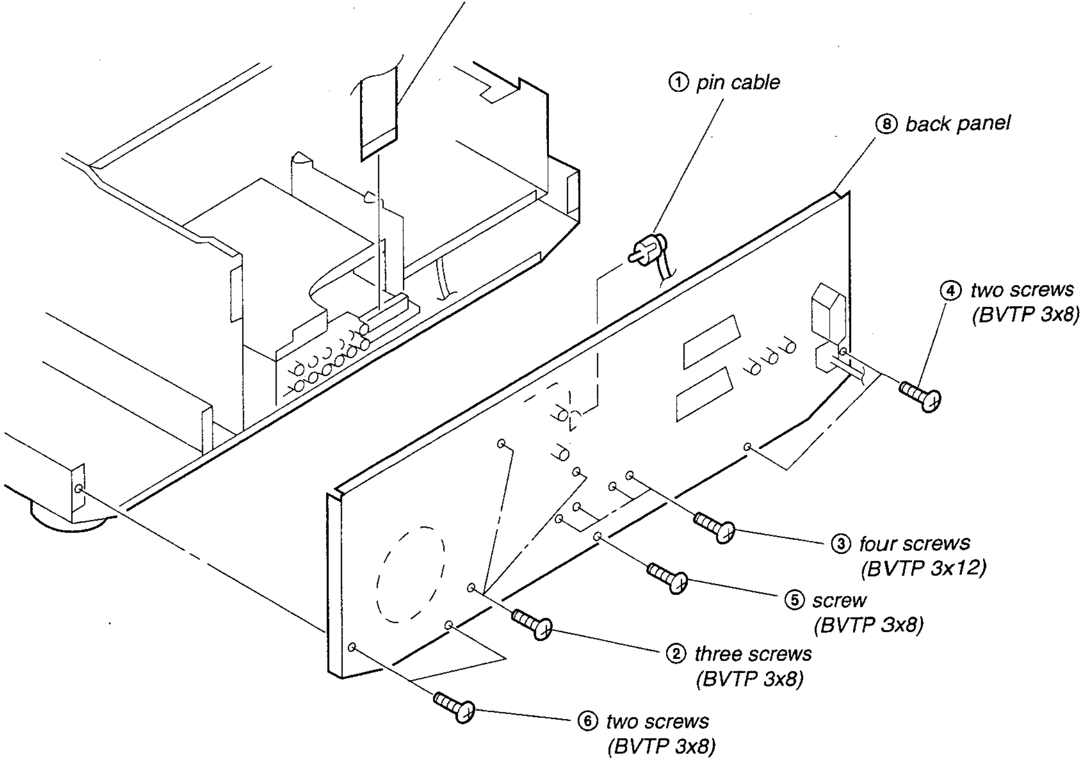


① CN101
② CN104
③ CN103
④ two screws (BVTP 3x8)
⑤ two screws (BVTP 3x8)
⑥ AC-106 board

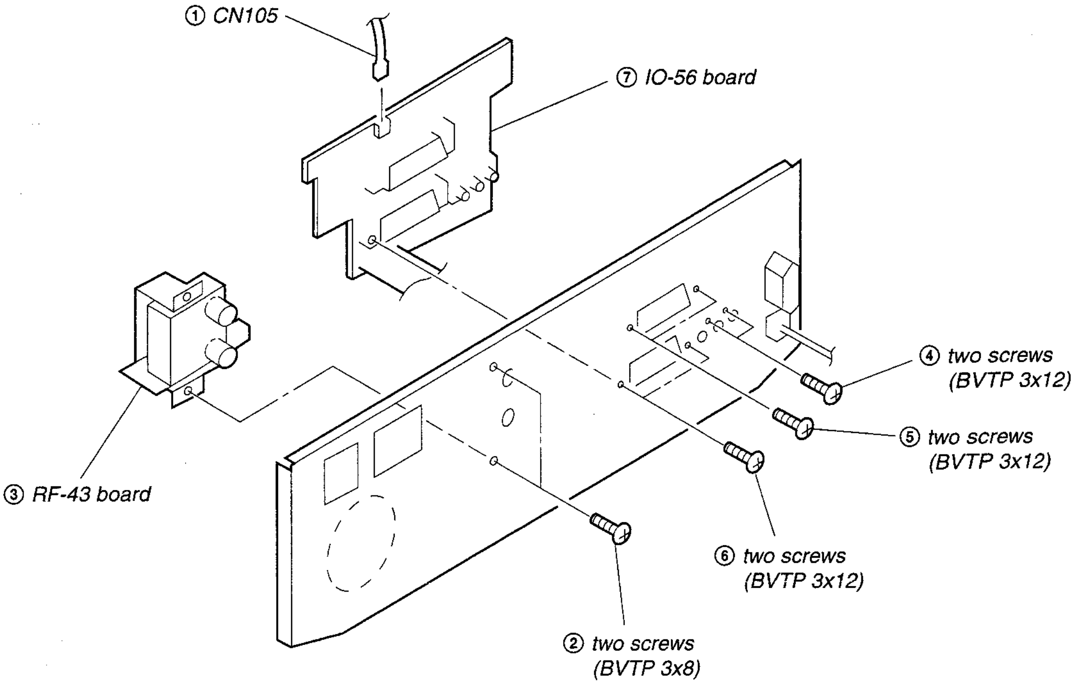
2-17. POWER TRANSFORMER


① two screws
(BVTT 4x8)
② two screws
(BVTT 4x8)
③ power transformer

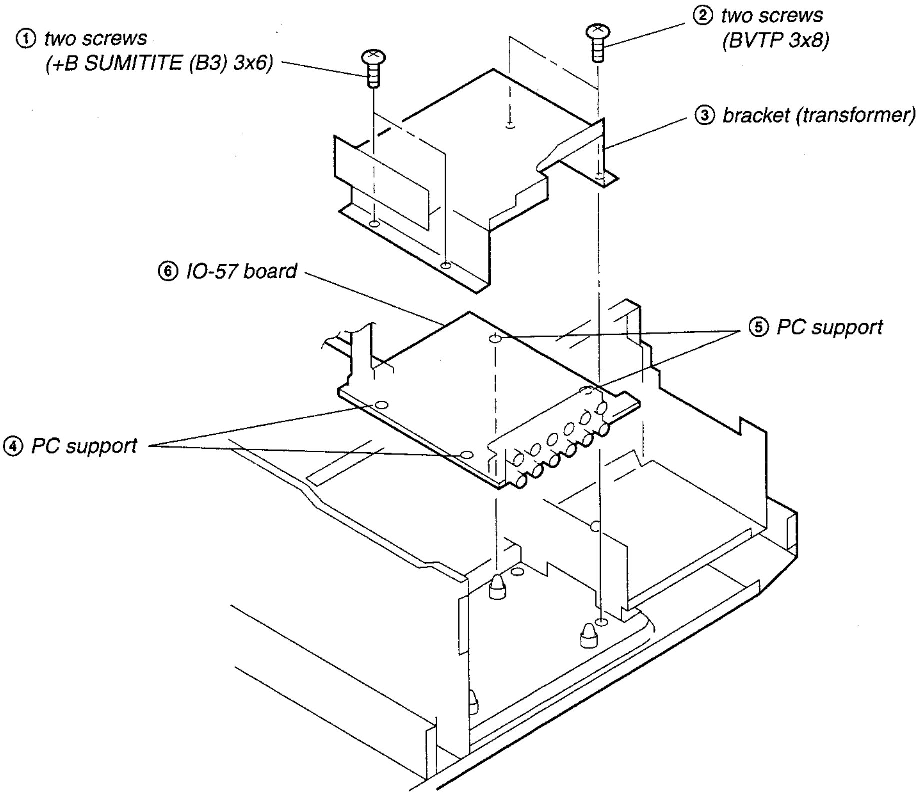
2-18. BACK PANEL


⑦ CN301
① pin cable
⑧ back panel
④ two screws
(BVTP 3x8)
③ four screws
(BVTP 3x12)
⑤ screw
(BVTP 3x8)
② three screws
(BVTP 3x8)
⑥ two screws
(BVTP 3x8)

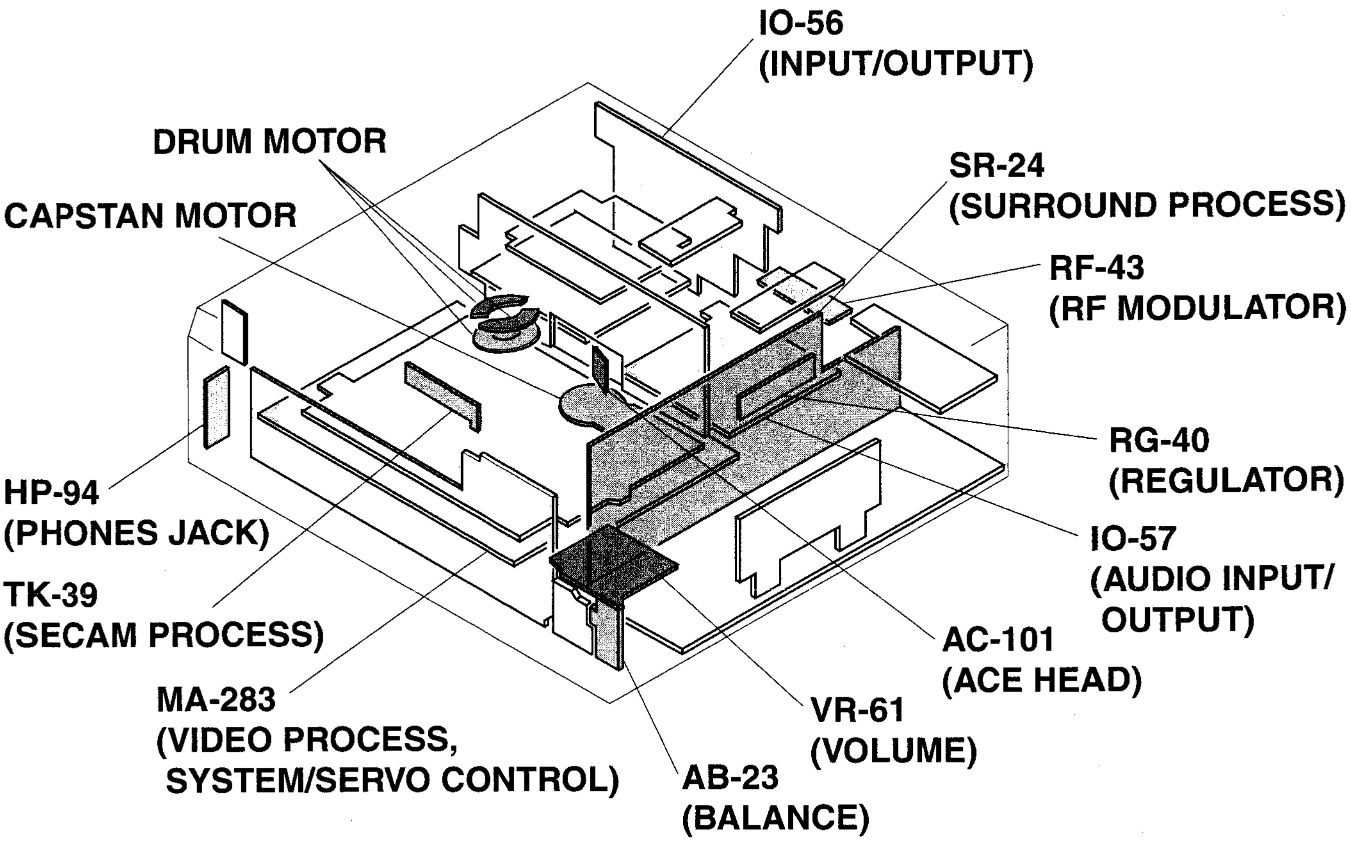
2-19. IO-56 BOARD


① CN105
⑦ IO-56 board
④ two screws (BVTP 3x12)
⑤ two screws (BVTP 3x12)
③ RF-43 board
⑥ two screws (BVTP 3x12)
② two screws (BVTP 3x8)

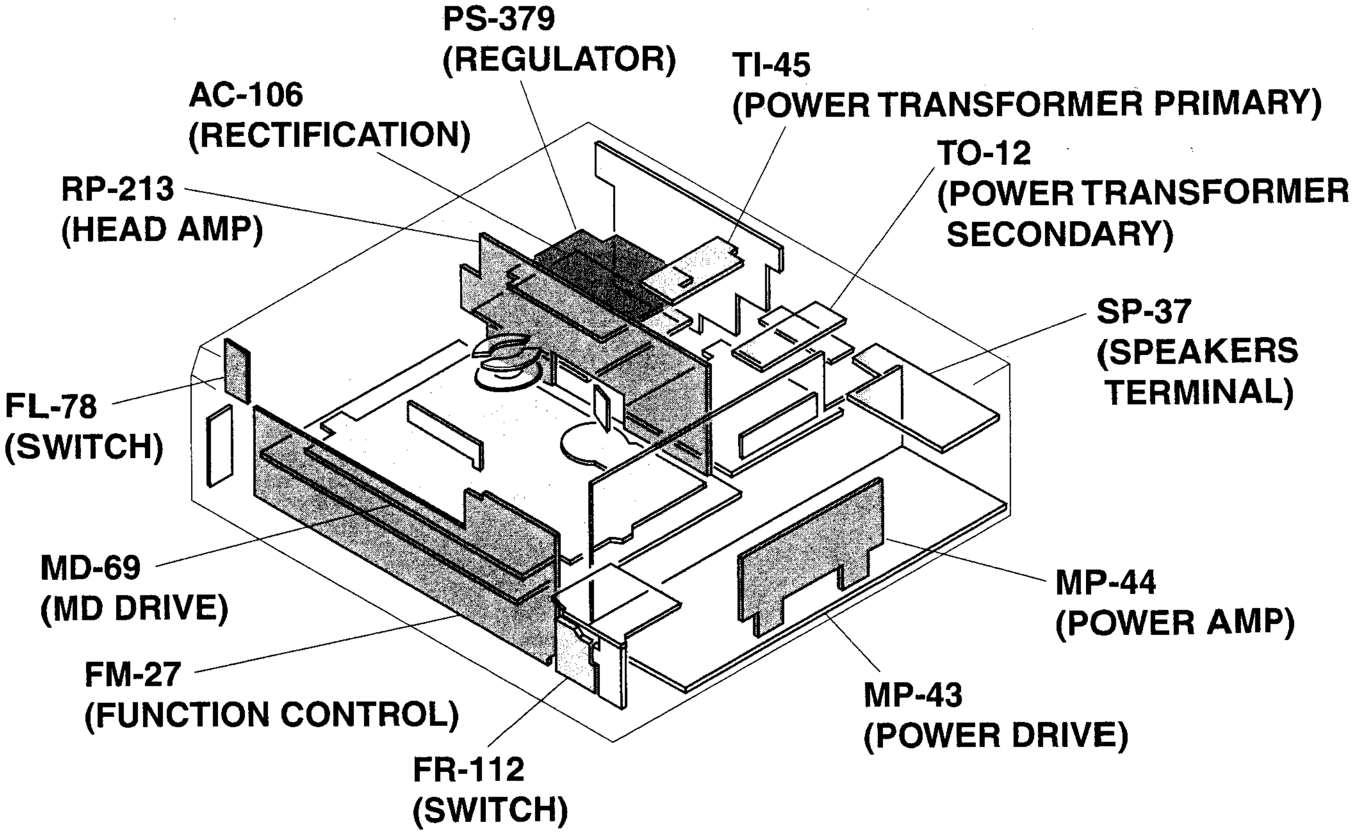
2-20. IO-57 BOARD


① two screws (+B SUMITITE (B3) 3x6)
② two screws (BVTP 3x8)
③ bracket (transformer)
⑥ IO-57 board
⑤ PC support
④ PC support

2-21. CIRCUIT BOARDS LOCATION



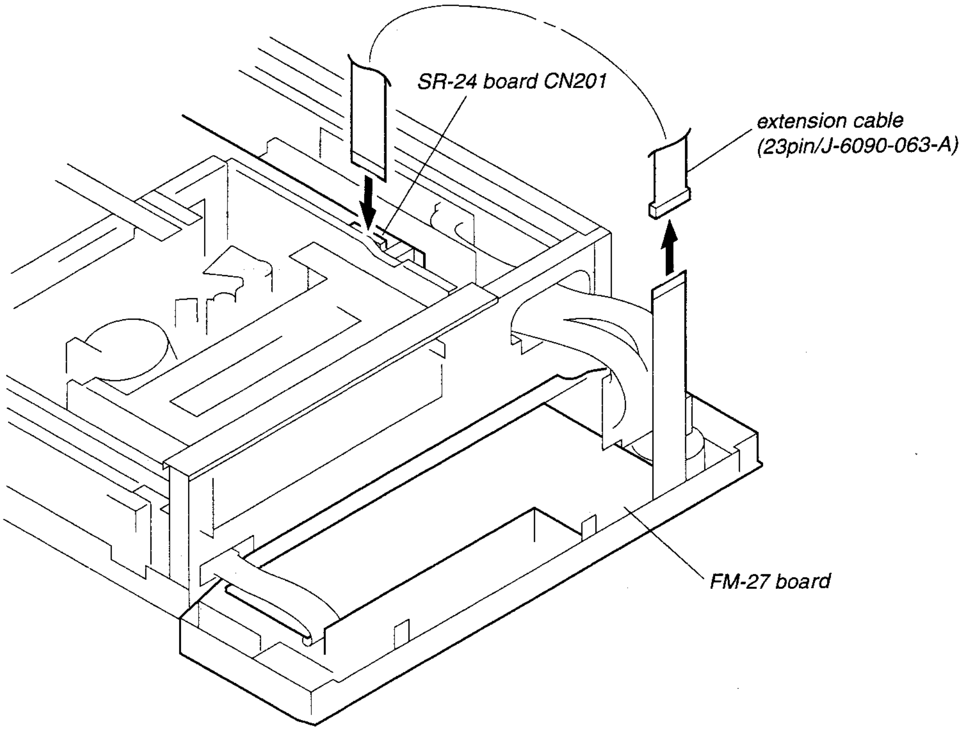
IO-56
(INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24
(SURROUND PROCESS)
RF-43
(RF MODULATOR)
RG-40
(REGULATOR)
HP-94
(PHONES JACK)
IO-57
(AUDIO INPUT/
OUTPUT)
TK-39
(SECAM PROCESS)
AC-101
(ACE HEAD)
MA-283
(VIDEO PROCESS,
SYSTEM/SERVO CONTROL)
VR-61
(VOLUME)
AB-23
(BALANCE)



PS-379
(REGULATOR)
TI-45
(POWER TRANSFORMER PRIMARY)
AC-106
(RECTIFICATION)
TO-12
(POWER TRANSFORMER
SECONDARY)
RP-213
(HEAD AMP)
SP-37
(SPEAKERS
TERMINAL)
FL-78
(SWITCH)
MD-69
(MD DRIVE)
MP-44
(POWER AMP)
FM-27
(FUNCTION CONTROL)
MP-43
(POWER DRIVE)
FR-112
(SWITCH)

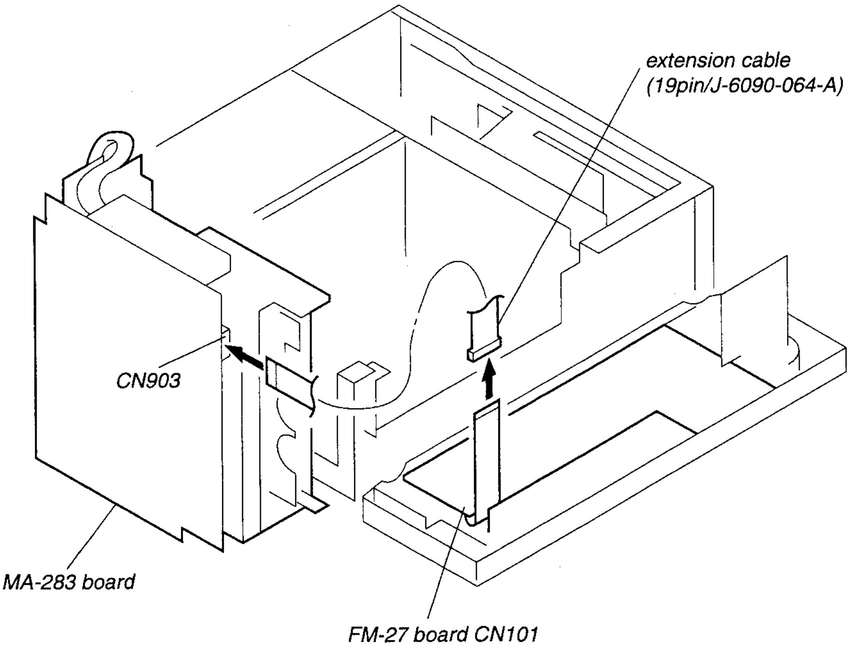
SECTION 3
SERVICE POSITION

3-1. FM-27 BOARD


SR-24 board CN201
extension cable
(23pin/J-6090-063-A)
FM-27 board

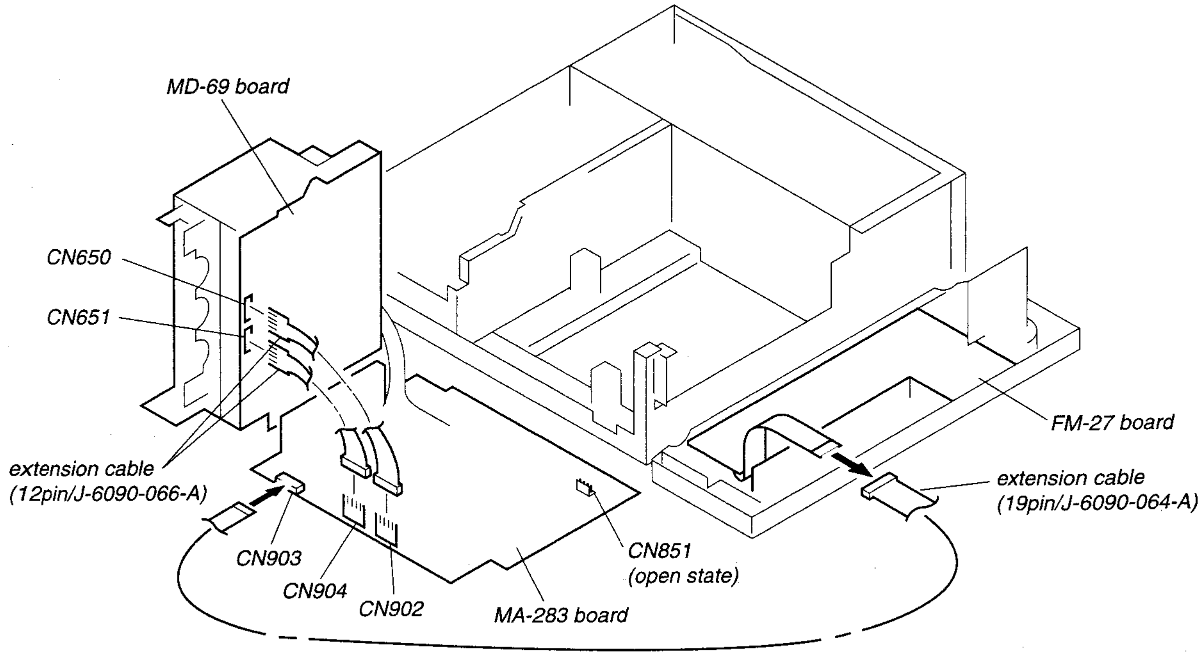
3-2. MA-283 BOARD

① *Remove the flat cables from CN601 and CN602 of the RP-213 board. (OPEN state)*

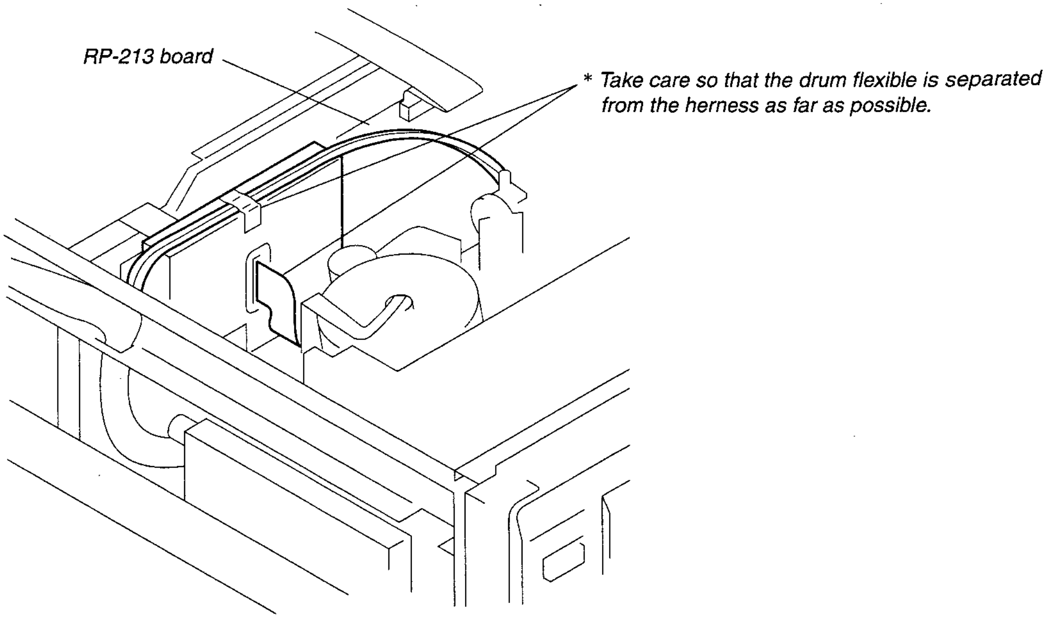

extension cable
(19pin/J-6090-064-A)
CN903
MA-283 board
FM-27 board CN101

3-3. MD-69 BOARD

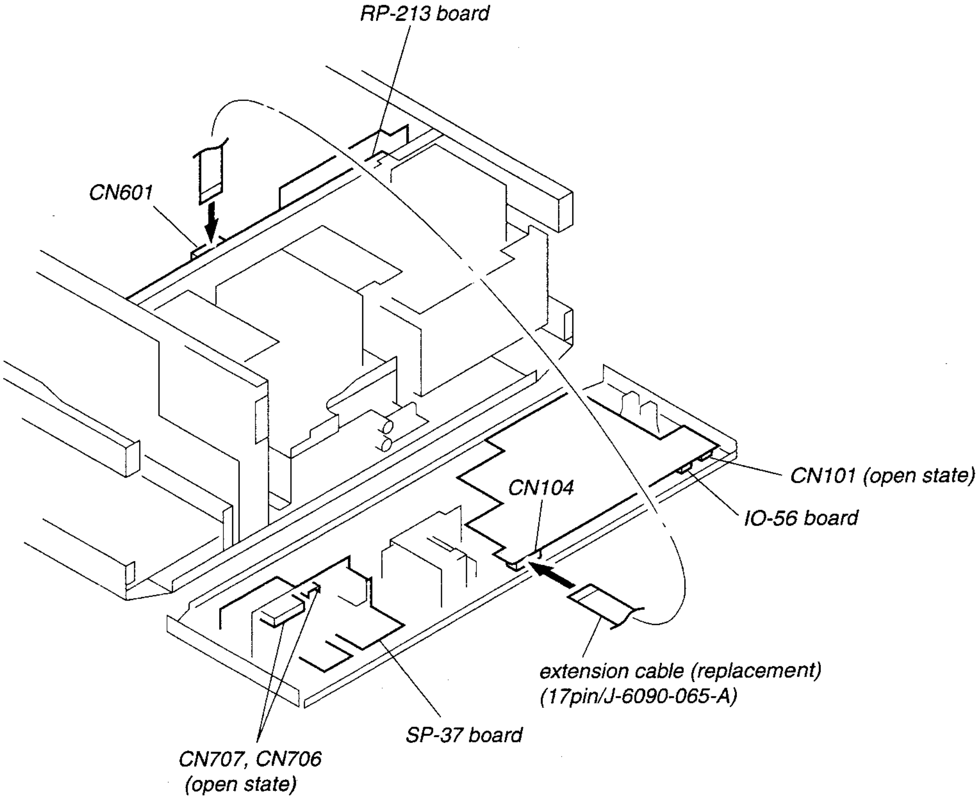
① *Remove the RP-213 board.*


MD-69 board
CN650
CN651
extension cable
(12pin/J-6090-066-A)
CN903
CN904
CN902
MA-283 board
CN851
(open state)
FM-27 board
extension cable
(19pin/J-6090-064-A)

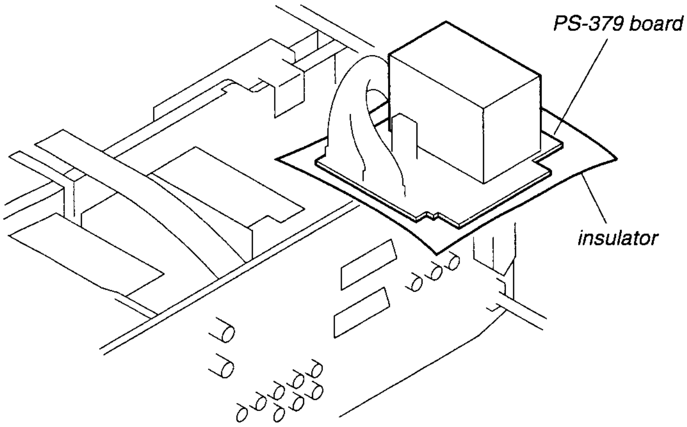
- Note for mounting of the RP-213 board.


RP-213 board
* Take care so that the drum flexible is separated from the herness as far as possible.

3-4. IO-56 BOARD

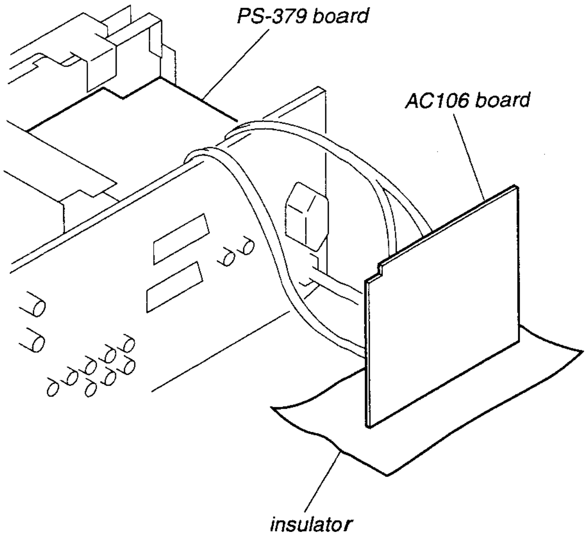

RP-213 board
CN601
CN101 (open state)
CN104
IO-56 board
extension cable (replacement)
(17pin/J-6090-065-A)
SP-37 board
CN707, CN706
(open state)

3-5. PS-379 BOARD

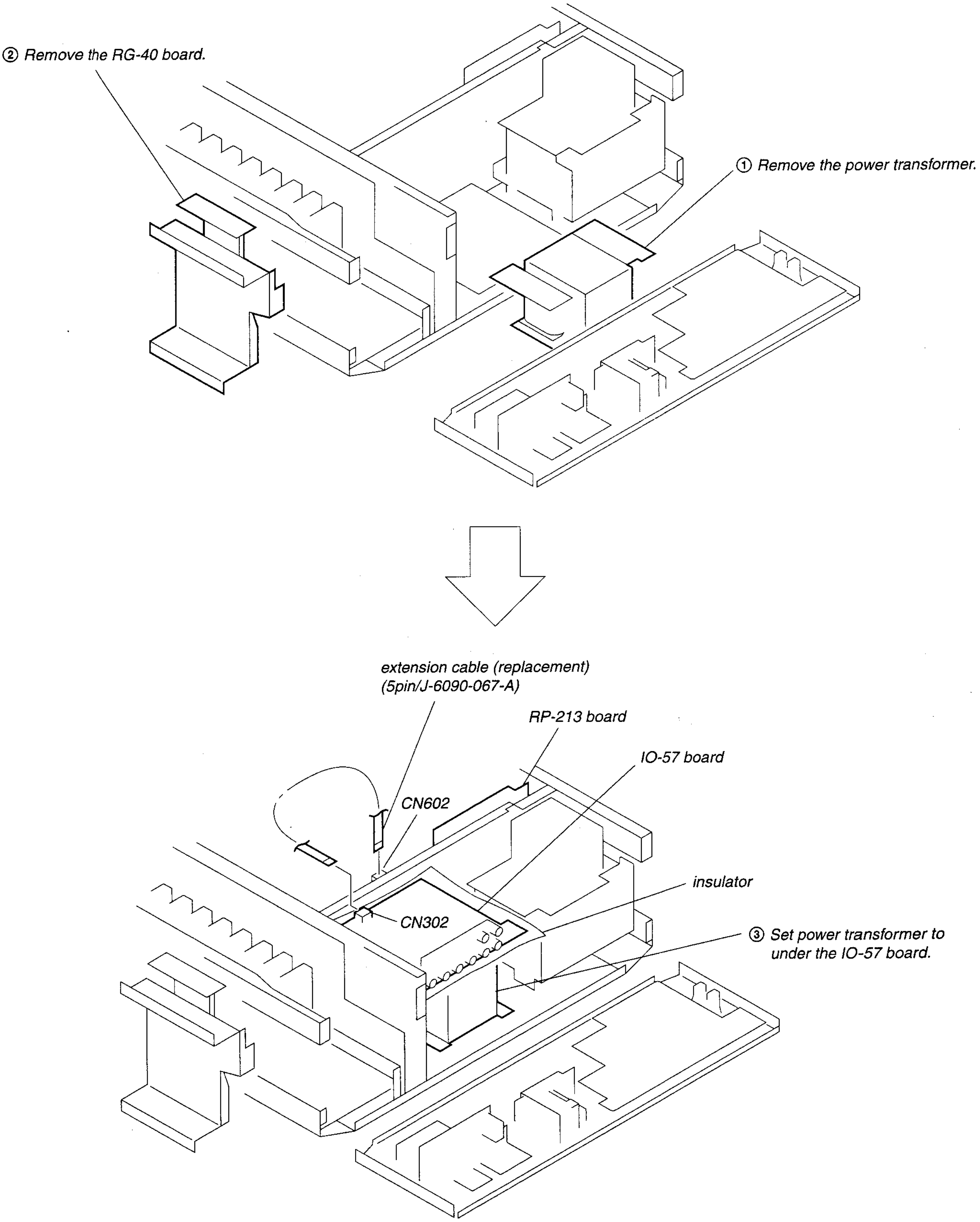

PS-379 board
insulator

3-6. AC-106 BOARD

① *Change the positions between the PS-379 board on the upside and AC-106 board on the downside.*


PS-379 board
AC106 board
insulator

3-7. IO-57 BOARD



② Remove the RG-40 board.

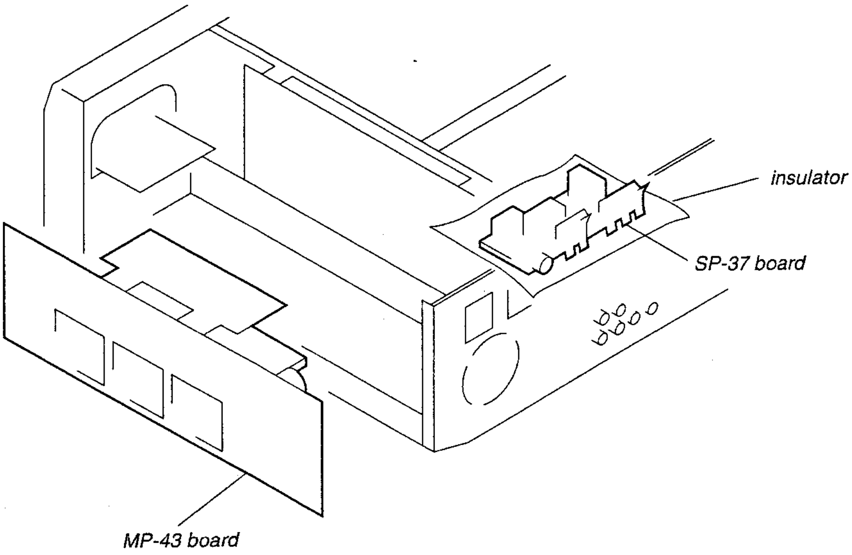
① Remove the power transformer.

③ Set power transformer to under the IO-57 board.

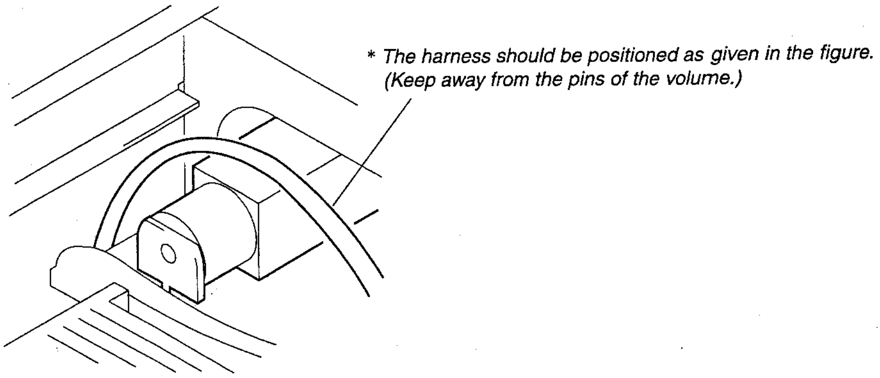
extension cable (replacement)
(5pin/J-6090-067-A)
RP-213 board
IO-57 board
CN602
insulator
CN302

3-8. MP-43 BOARD AND SP-37 BOARD

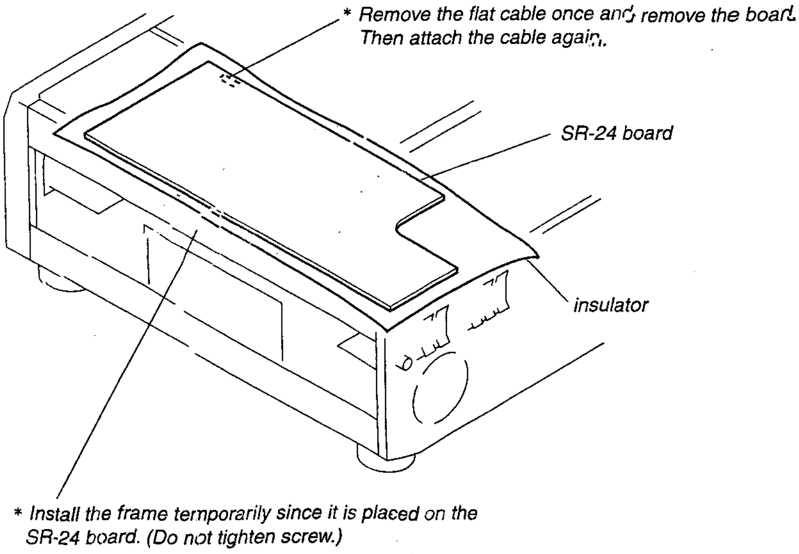
① *Remove the fan motor.*


insulator
SP-37 board
MP-43 board

- Note for mounting of the VR-61 board.


* *The harness should be positioned as given in the figure. (Keep away from the pins of the volume.)*

3-9. SR-24 BOARD

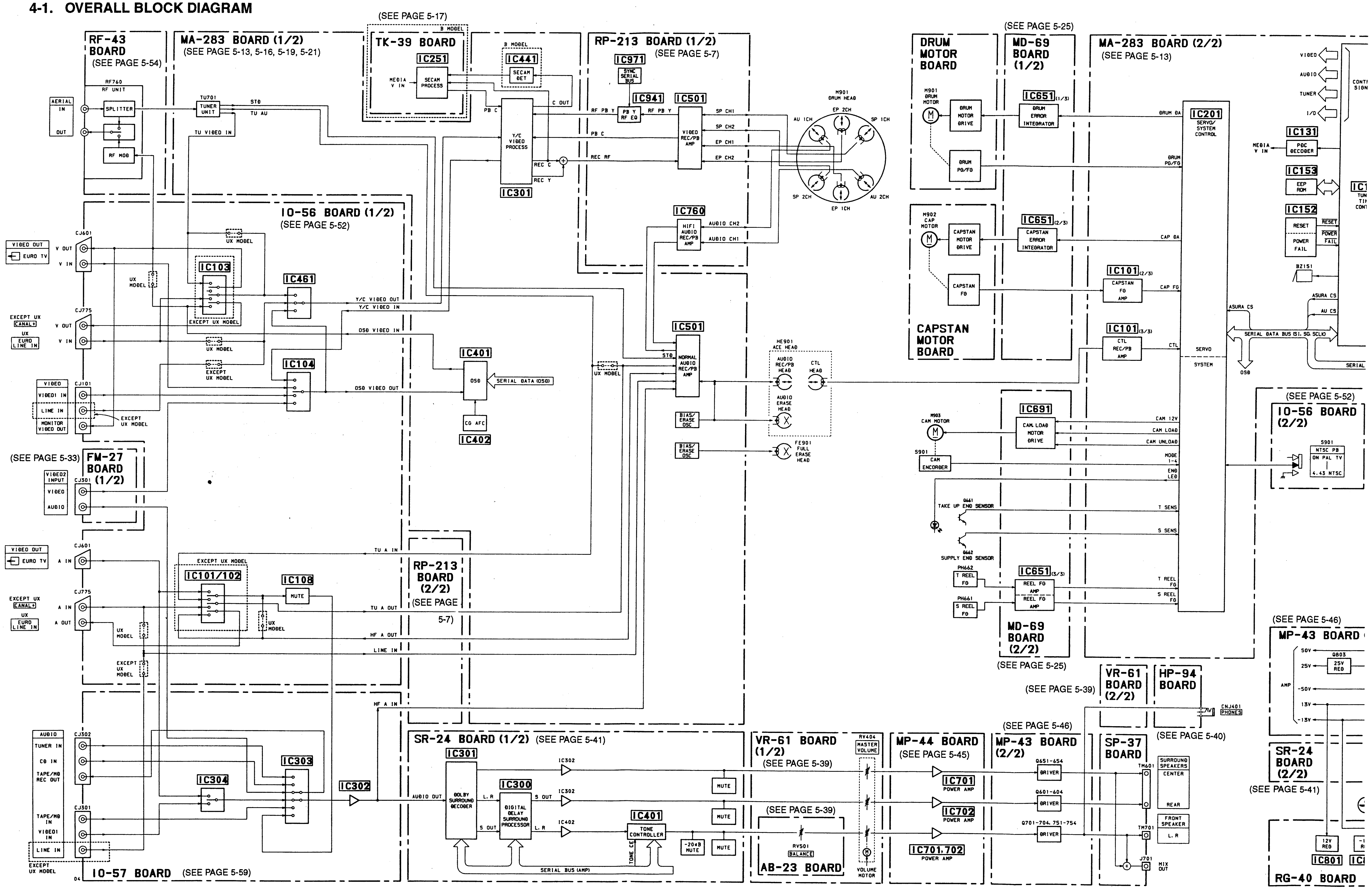

* *Remove the flat cable once and remove the board. Then attach the cable again.*

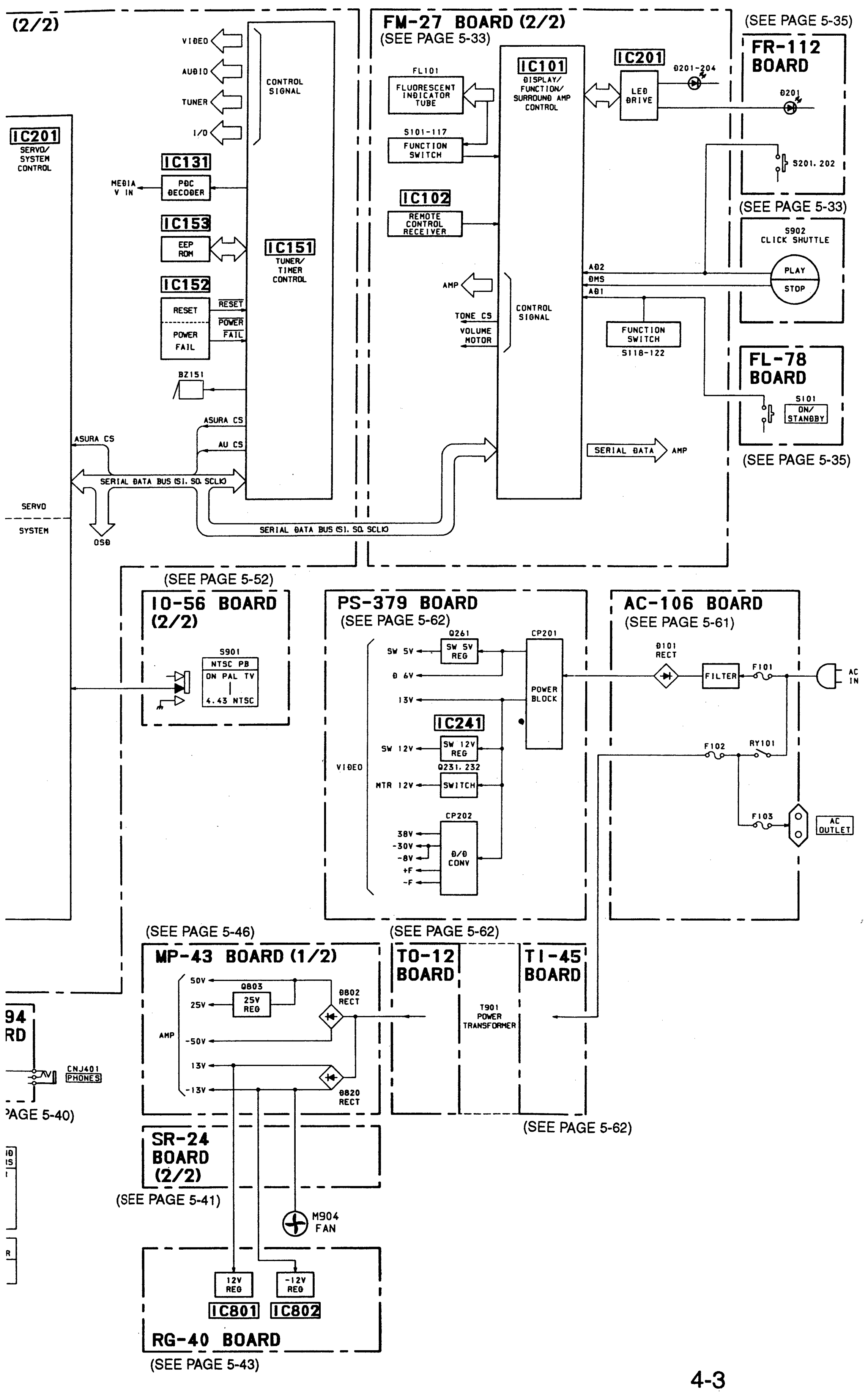
SR-24 board
insulator

* *Install the frame temporarily since it is placed on the SR-24 board. (Do not tighten screw.)*

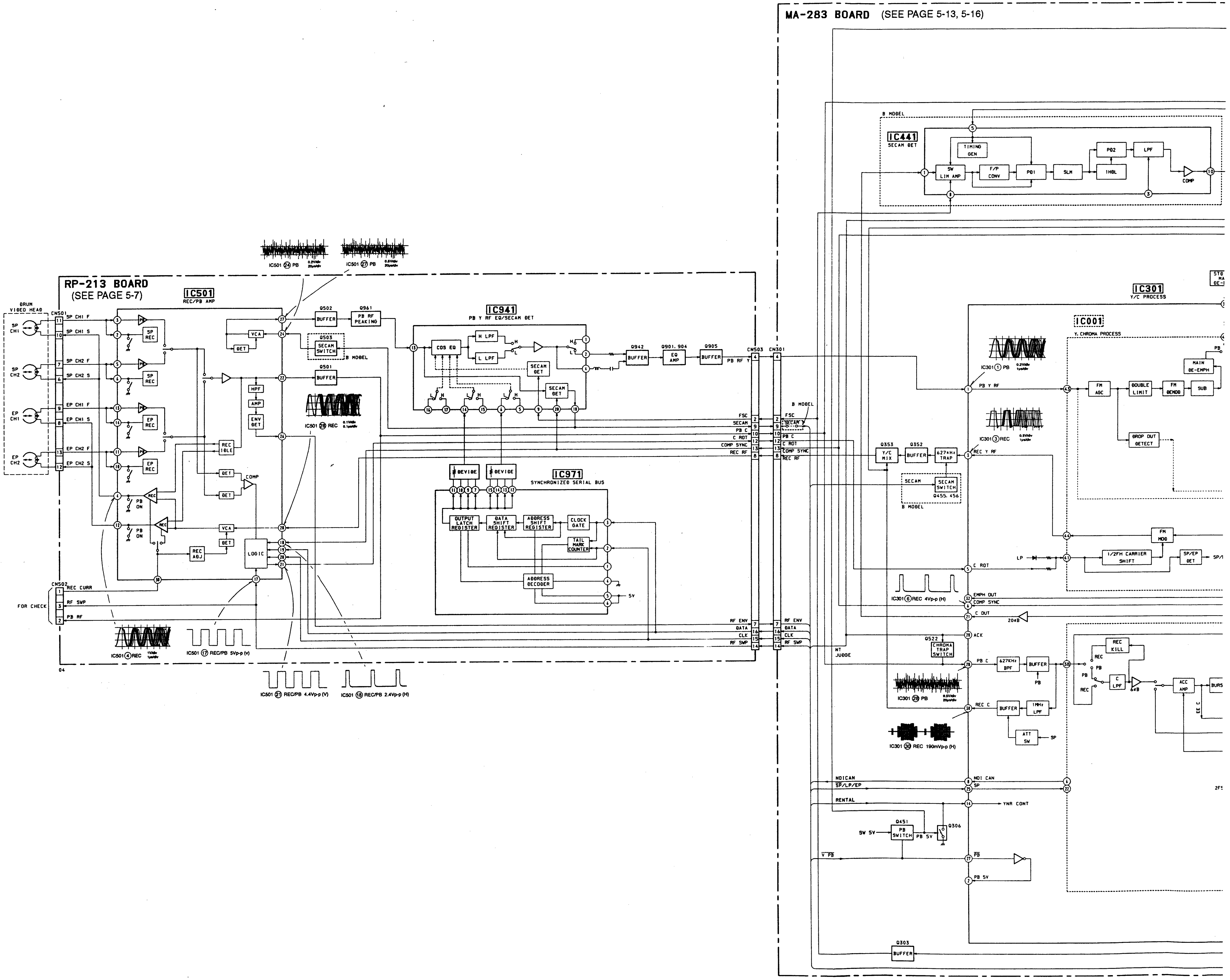
SECTION 4
BLOCK DIAGRAMS

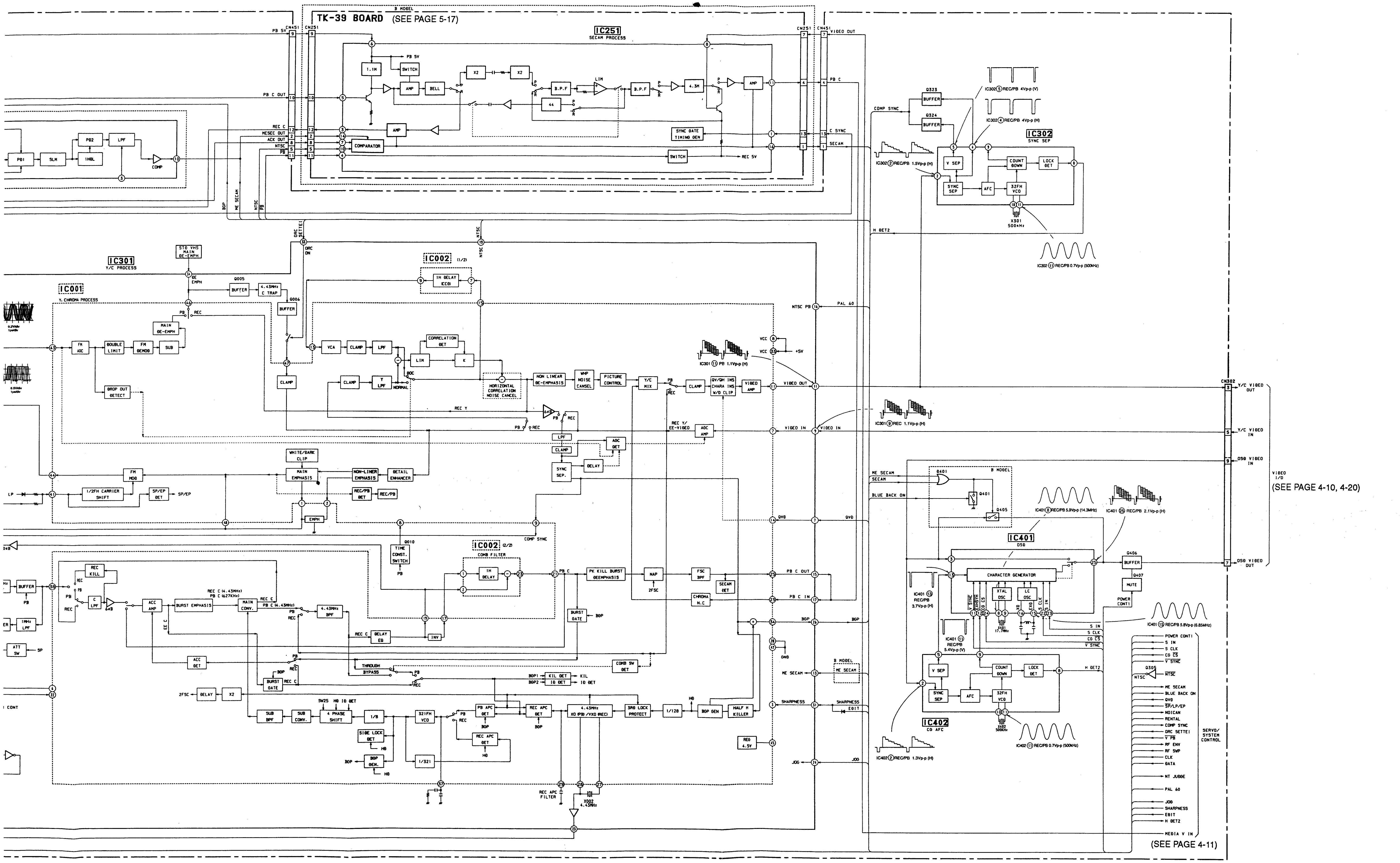
4-1. OVERALL BLOCK DIAGRAM


(SEE PAGE 5-17)
RF-43 BOARD
(SEE PAGE 5-54)
RF760 RF UNIT
SPLITTER
RF MOD
AERIAL IN
OUT
MA-283 BOARD (1/2)
(SEE PAGE 5-13, 5-16, 5-19, 5-21)
TU701 TUNER UNIT
STD
TU AU
TU VIDEO IN
TK-39 BOARD
B MODEL
IC251
MEDIA V IN
SECAM PROCESS
IC441
SECAM DET
PB C
C OUT
Y/C VIDEO PROCESS
REC C
REC Y
IC301
RP-213 BOARD (1/2)
(SEE PAGE 5-7)
IC971
SYNC SERIAL BUS
IC941
PB Y RF EQ
RF PB Y
IC501
VIDEO REC/PB AMP
SP CH1
SP CH2
EP CH1
EP CH2
REC RF
M901 DRUM HEAD
AU 1CH
EP 2CH
SP 1CH
SP 2CH
EP 1CH
AU 2CH
IC760
HIFI AUDIO REC/PB AMP
AUDIO CH2
AUDIO CH1
IC501
NORMAL AUDIO REC/PB AMP
BIAS/ERASE OSC
HE901 ACE HEAD
AUDIO REC/PB HEAD
CTL HEAD
AUDIO ERASE HEAD
FE901 FULL ERASE HEAD
10-56 BOARD (1/2)
(SEE PAGE 5-52)
CJ601
VIDEO OUT
EURO TV
V OUT
V IN
UX MODEL
EXCEPT UX MODEL
IC103
IC461
Y/C VIDEO OUT
Y/C VIDEO IN
CJ775
EXCEPT UX CANAL+
UX EURO LINE IN
OSD VIDEO IN
IC104
OSD VIDEO OUT
IC401
OSD
SERIAL DATA (OSD)
CG AFC
IC402
CJ101
VIDEO
VIDEO1 IN
LINE IN
MONITOR VIDEO OUT
(SEE PAGE 5-33)
FM-27 BOARD (1/2)
VIDEO2 INPUT
VIDEO
AUDIO
CJ301
A IN
A OUT
IC101/102
IC108
MUTE
TU A IN
TU A OUT
HF A OUT
LINE IN
HF A IN
RP-213 BOARD (2/2)
(SEE PAGE 5-7)
AUDIO
TUNER IN
CD IN
TAPE/MD REC OUT
CJ302
TAPE/MD IN
VIDEO1 IN
IC304
IC303
IC302
10-57 BOARD
(SEE PAGE 5-59)
SR-24 BOARD (1/2) (SEE PAGE 5-41)
IC301
DOLBY SURROUND DECODER
AUDIO OUT
IC300
DIGITAL DELAY SURROUND PROCESSOR
S OUT
L, R
IC302
IC402
IC401
TONE CONTROLLER
-20dB MUTE
MUTE
SERIAL BUS (AMP)
VR-61 BOARD (1/2)
(SEE PAGE 5-39)
RV404 MASTER VOLUME
RV501 BALANCE
AB-23 BOARD
VOLUME MOTOR
MP-44 BOARD
(SEE PAGE 5-45)
IC701 POWER AMP
IC702 POWER AMP
IC701,702 POWER AMP
MP-43 BOARD (2/2)
(SEE PAGE 5-46)
Q651-654 DRIVER
Q601-604 DRIVER
Q701-704, 751-754 DRIVER
SP-37 BOARD
TM601
SURROUND SPEAKERS
CENTER
REAR
FRONT SPEAKER
L, R
TM701
J701 MIX OUT
(SEE PAGE 5-48)
DRUM MOTOR BOARD
M901 DRUM MOTOR
DRUM MOTOR DRIVE
DRUM PG/FG
(SEE PAGE 5-25)
MD-69 BOARD (1/2)
IC651 (1/3)
DRUM ERROR INTEGRATOR
IC651 (2/3)
CAPSTAN ERROR INTEGRATOR
M902 CAP MOTOR
CAPSTAN MOTOR DRIVE
CAPSTAN FG
CAPSTAN MOTOR BOARD
IC101 (2/3)
CAPSTAN FG AMP
IC101 (3/3)
CTL REC/PB AMP
MA-283 BOARD (2/2)
(SEE PAGE 5-13)
DRUM DA
DRUM PG/FG
CAP DA
CAP FG
CTL
IC201
SERVO/SYSTEM CONTROL
SERVO
SYSTEM
ASURA CS
AU CS
SERIAL DATA BUS (SI, SO, SCLK)
OSD
VIDEO
AUDIO
TUNER
I/O
MEDIA V IN
IC131 PDC DECODER
IC153 EEP ROM
IC152
RESET
POWER FAIL
BZ151
IC691
CAM LOAD MOTOR DRIVE
M903 CAM MOTOR
S901 CAM ENCODER
CAM 12V
CAM LOAD
CAM UNLOAD
MODE 1-4
END LED
Q661 TAKE UP END SENSOR
Q662 SUPPLY END SENSOR
T SENS
S SENS
PH662 T REEL FG
PH661 S REEL FG
IC651 (3/3)
REEL FG AMP
T REEL FG
S REEL FG
MD-69 BOARD (2/2)
(SEE PAGE 5-25)
(SEE PAGE 5-52)
10-56 BOARD (2/2)
S901 NTSC PB
ON PAL TV
4.43 NTSC
(SEE PAGE 5-39)
VR-61 BOARD (2/2)
HP-94 BOARD
(SEE PAGE 5-40)
CNJ401 PHONES
(SEE PAGE 5-46)
MP-43 BOARD
50V
25V
Q803 25V REG
AMP
-50V
13V
-13V
SR-24 BOARD (2/2)
(SEE PAGE 5-41)
12V REG
IC801
RG-40 BOARD
(SEE PAGE 5-43)

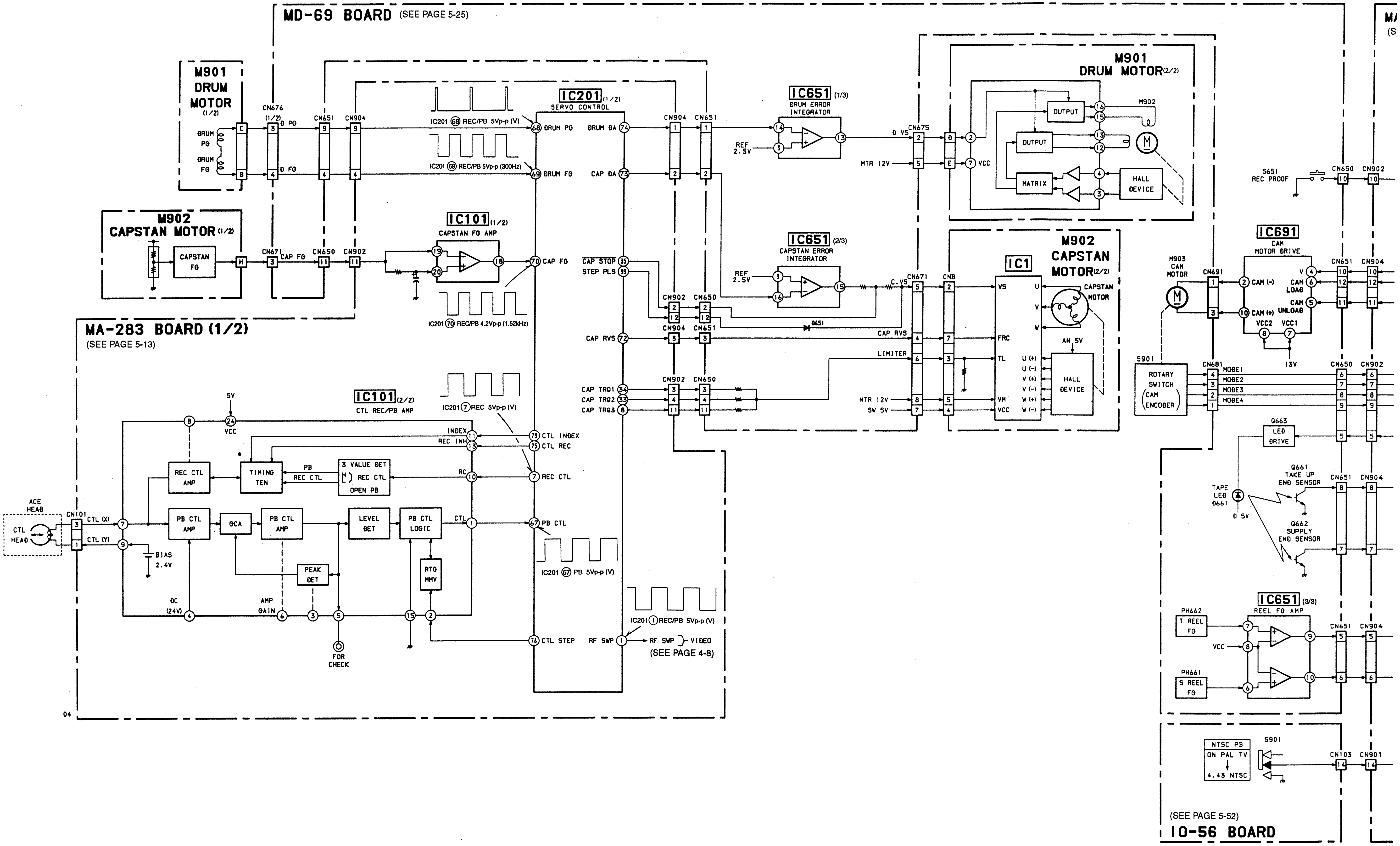

(2/2)
IC201
SERVO/ SYSTEM CONTROL
VIDEO
AUDIO
TUNER
I/O
CONTROL SIGNAL
IC131
MEDIA V IN
PDC DECODER
IC153
EEP ROM
IC151
TUNER/ TIMER CONTROL
IC152
RESET
POWER FAIL
BZ151
ASURA CS
AU CS
SERIAL DATA BUS (SI, SO, SCLK)
SERVO
SYSTEM
050
FM-27 BOARD (2/2)
(SEE PAGE 5-33)
FL101
FLUORESCENT INDICATOR TUBE
S101-117
FUNCTION SWITCH
IC102
REMOTE CONTROL RECEIVER
IC101
DISPLAY/ FUNCTION/ SURROUND AMP CONTROL
IC201
LED DRIVE
D201-204
AMP
TONE CS
VOLUME MOTOR
AD2
DMS
AD1
FUNCTION SWITCH
S118-122
SERIAL DATA
AMP
(SEE PAGE 5-35)
FR-112 BOARD
D201
S201, 202
(SEE PAGE 5-33)
S902 CLICK SHUTTLE
PLAY
STOP
FL-78 BOARD
S101
ON/ STANDBY
(SEE PAGE 5-35)
(SEE PAGE 5-52)
IO-56 BOARD (2/2)
S901
NTSC PB
ON PAL TV
4.43 NTSC
PS-379 BOARD
(SEE PAGE 5-62)
Q261
SW 5V REG
SW 5V
D 6V
13V
CP201
POWER BLOCK
IC241
SW 12V REG
SW 12V
VIDEO
MTR 12V
Q231, 232
SWITCH
CP202
38V
-30V
-8V
+F
-F
D/D CONV
AC-106 BOARD
(SEE PAGE 5-61)
D101 RECT
FILTER
F101
AC IN
F102
RY101
F103
AC OUTLET
(SEE PAGE 5-46)
MP-43 BOARD (1/2)
50V
Q803
25V
25V REG
D802 RECT
AMP
-50V
13V
-13V
D820 RECT
(SEE PAGE 5-62)
TO-12 BOARD
T901 POWER TRANSFORMER
TI-45 BOARD
(SEE PAGE 5-62)
94
RD
CNJ401 PHONES
PAGE 5-40)
SR-24 BOARD (2/2)
(SEE PAGE 5-41)
M904 FAN
12V REG
-12V REG
IC801
IC802
RG-40 BOARD
(SEE PAGE 5-43)

4-2. VIDEO BLOCK DIAGRAM

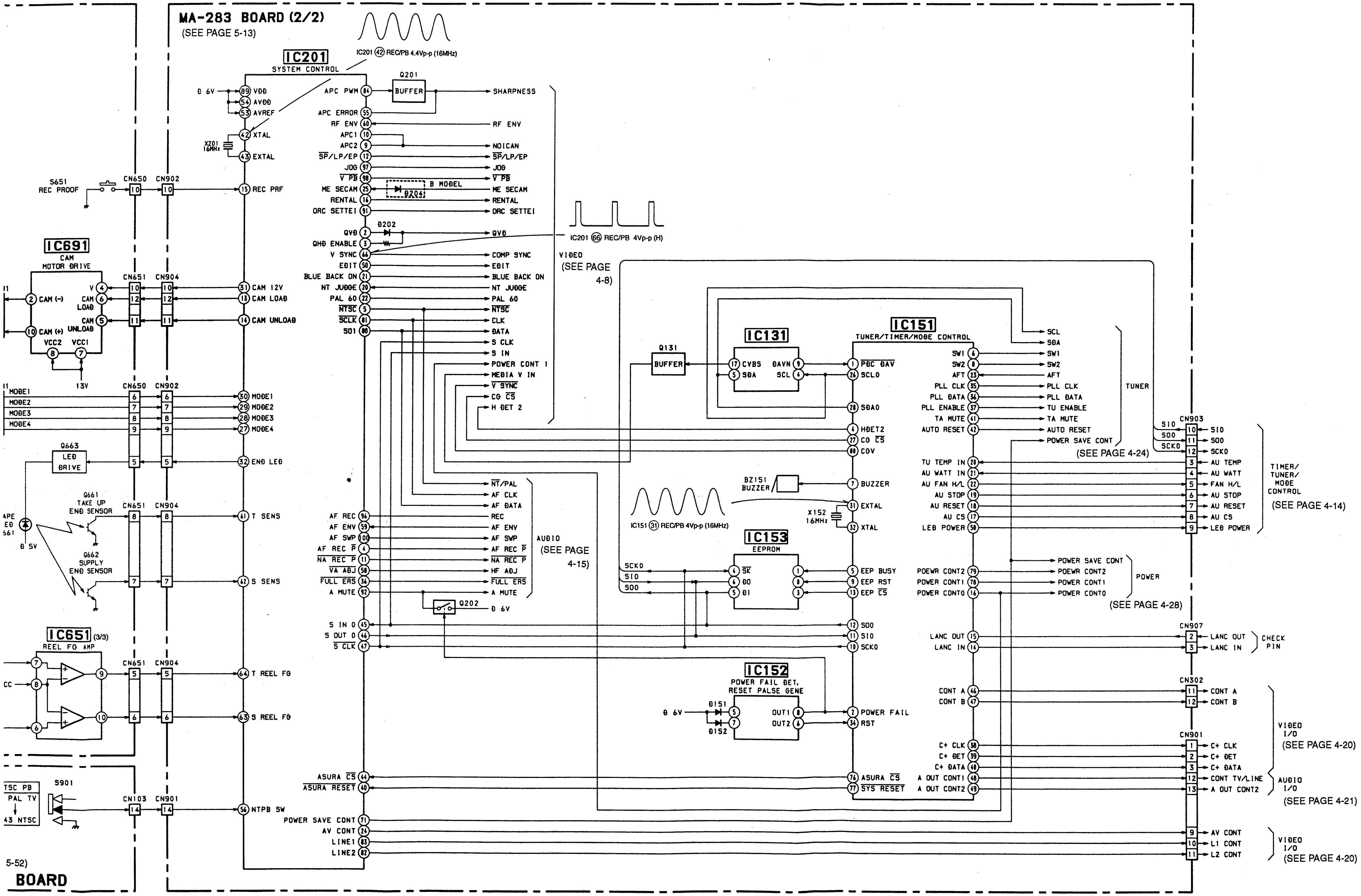

MA-283 BOARD (SEE PAGE 5-13, 5-16)
RP-213 BOARD
(SEE PAGE 5-7)
IC501
REC/PB AMP
IC941
PB Y RF EQ/SECAM DET
IC971
SYNCHRONIZED SERIAL BUS
IC441
SECAM DET
IC301
Y/C PROCESS
IC001
Y, CHROMA PROCESS
DRUM
VIDEO HEAD
SP CH1
SP CH2
EP CH1
EP CH2
CN501
CN502
CN503
CN301
FOR CHECK
REC CURR
RF SWP
PB RF
SP CH1 F
SP CH1 S
SP CH2 F
SP CH2 S
EP CH1 F
EP CH1 S
EP CH2 F
EP CH2 S
SP REC
EP REC
PB ON
REC ADJ
LOGIC
VCA
DET
COMP
HPF
AMP
ENV DET
REC IDLE
Q502
BUFFER
Q961
PB RF PEAKING
Q503
SECAM SWITCH
B MODEL
Q501
COS EQ
H LPF
L LPF
SECAM DET
Q942
Q901, 904
EQ AMP
Q905
PB RF Y
DEVIDE
OUTPUT LATCH REGISTER
DATA SHIFT REGISTER
ADDRESS SHIFT REGISTER
CLOCK GATE
TAIL MARK COUNTER
ADDRESS DECODER
5V
FSC
SECAM
PB C
C ROT
COMP SYNC
REC RF
RF ENV
DATA
CLK
RF SWP
IC501 ㉔ PB
IC501 ㉗ PB
IC501 ㉒ REC
IC501 ④ REC
IC501 ⑰ REC/PB 5Vp-p (V)
IC501 ㉑ REC/PB 4.4Vp-p (V)
IC501 ⑱ REC/PB 2.4Vp-p (H)
TIMING GEN
SW LIM AMP
F/P CONV
PD1
SLN
PD2
1HDL
LPF
COMP
IC301 ① PB
PB Y RF
IC301 ③ REC
REC Y RF
Q353
Y/C MIX
Q352
BUFFER
627kHz TRAP
SECAM SWITCH
Q455, 456
FM AGC
DOUBLE LIMIT
FM DEMOD
SUB
MAIN DE-EMPH
DROP OUT DETECT
FM MOD
1/2FH CARRIER SHIFT
SP/EP DET
LP
C ROT
IC301 ⑥ REC 4Vp-p (H)
EMPH OUT
COMP SYNC
C OUT
20dB
ACK
NT JUDGE
Q522
CHROMA TRAP SWITCH
PB C
627kHz BPF
BUFFER
IC301 ㉙ PB
REC C
1MHz LPF
ATT SW
SP
IC301 ㉚ REC 190mVp-p (H)
REC KILL
REC
PB
C LPF
6dB
ACC AMP
NOICAN
SP/LP/EP
RENTAL
YNR CONT
Q451
PB SWITCH
SW 5V
PB 5V
Q306
V PB
PB
PB 5V
Q303
BUFFER


TK-39 BOARD (SEE PAGE 5-17)
B MODEL
IC251
SECAM PROCESS
CN451
CN251
PB 5V
PB C OUT
REC C
MESEC OUT
ACK OUT
NTSC
PB
1.1H
SWITCH
AMP
BELL
X2
B.P.F
LIM
4.3M
44
COMPARATOR
SYNC GATE TIMING GEN
REC 5V
VIDEO OUT
PB C
C SYNC
SECAM
PB1
SLM
PB2
LPF
1HDL
COMP
IC302
SYNC SEP
Q323
Q324
BUFFER
COMP SYNC
V SEP
SYNC SEP
AFC
COUNT DOWN
LOCK DET
32FH VCO
X301 500kHz
H DET2
IC302 ⑤ REC/PB 4Vp-p (V)
IC302 ④ REC/PB 4Vp-p (H)
IC302 ② REC/PB 1.5Vp-p (H)
IC302 ⑪ REC/PB 0.7Vp-p (500kHz)
IC301
Y/C PROCESS
STD VHS MAIN DE-EMPH
DRC SETTE1
DRC ON
IC002 (1/2)
1H DELAY (CCD)
IC001
Y, CHROMA PROCESS
Q005
Q006
4.43MHz C TRAP
FM AGC
DOUBLE LIMIT
FM DEMOD
SUB
MAIN DE-EMPH
DROP OUT DETECT
VCA
CLAMP
Y LPF
CORRELATION DET
HORIZONTAL CORRELATION NOISE CANCEL
NON LINEAR DE-EMPHASIS
WHP NOISE CANSEL
PICTURE CONTROL
Y/C MIX
QV/OH INS CHARA INS W/D CLIP
VIDEO AMP
REC Y
ADC AMP
ADC DET
DELAY
SYNC SEP.
REC Y/ EE-VIDEO
VCC
+5V
IC301 ⑪ PB 1.1Vp-p (H)
IC301 ⑨ REC 1.1Vp-p (H)
NTSC PB
PAL 60
VIDEO IN
WHITE/DARK CLIP
MAIN EMPHASIS
NON-LINER EMPHASIS
DETAIL ENHANCER
FM MOD
1/2FH CARRIER SHIFT
SP/EP DET
REC/PB DET
EMPH
COMP SYNC
Q010
TIME CONST. SWITCH
IC002 (2/2)
COMB FILTER
1H DELAY
PK KILL BURST DEEMPHASIS
NAP
2FSC
FSC BPF
SECAM DET
CHROMA N.C
PB C OUT
PB C IN
QVD
REC KILL
C LPF
ACC AMP
BURST EMPHASIS
MAIN CONV.
REC C (4.43MHz)
PB C (627KHz)
4.43MHz BPF
BURST GATE
DELAY EQ
INV
ACC DET
THROUGH BYPASS
COMB SW DET
KIL DET
ID DET
BOP
HD
SUB BPF
SUB CONV.
4 PHASE SHIFT
1/8
321FH VCO
PB APC DET
REC APC DET
4.43MHz XO (PB)/VXO (REC)
3RD LOCK PROTECT
1/128
BOP GEN
HALF H KILLER
SIDE LOCK DET
BOP GEN.
1/321
REC APC FILTER
X002 4.43MHz
REG 4.5V
GND
ME SECAM
SHARPNESS
EDIT
JOG
BUFFER
1MHz LPF
ATT SW
SP
LP
SP/EP
CONT
CN302
Y/C VIDEO OUT
Y/C VIDEO IN
OSD VIDEO IN
OSD VIDEO OUT
VIDEO I/O
(SEE PAGE 4-10, 4-20)
Q401
Q405
Q406
Q407
MUTE
POWER CONT1
BLUE BACK ON
IC401
OSD
CHARACTER GENERATOR
XTAL OSC
LC OSC
X401 17.7MHz
IC401 ⑧ REC/PB 5.8Vp-p (14.3MHz)
IC401 ㉕ REC/PB 2.1Vp-p (H)
IC401 ⑬ REC/PB 3.7Vp-p (H)
IC401 ⑪ REC/PB 5.4Vp-p (V)
IC401 ⑮ REC/PB 5.8Vp-p (6.85MHz)
S IN
S CLK
CG CS
V SYNC
IC402
CG AFC
X402 500kHz
IC402 ② REC/PB 1.3Vp-p (H)
IC402 ⑪ REC/PB 0.7Vp-p (500kHz)
Q305
NTSC
ME SECAM
BLUE BACK ON
QVD
SP/LP/EP
NDICAN
RENTAL
COMP SYNC
DRC SETTE1
V PB
RF ENV
RF SWP
CLK
DATA
NT JUDGE
PAL 60
JOG
SHARPNESS
EDIT
H DET2
MEGIA V IN
SERVO/ SYSTEM CONTROL
(SEE PAGE 4-11)

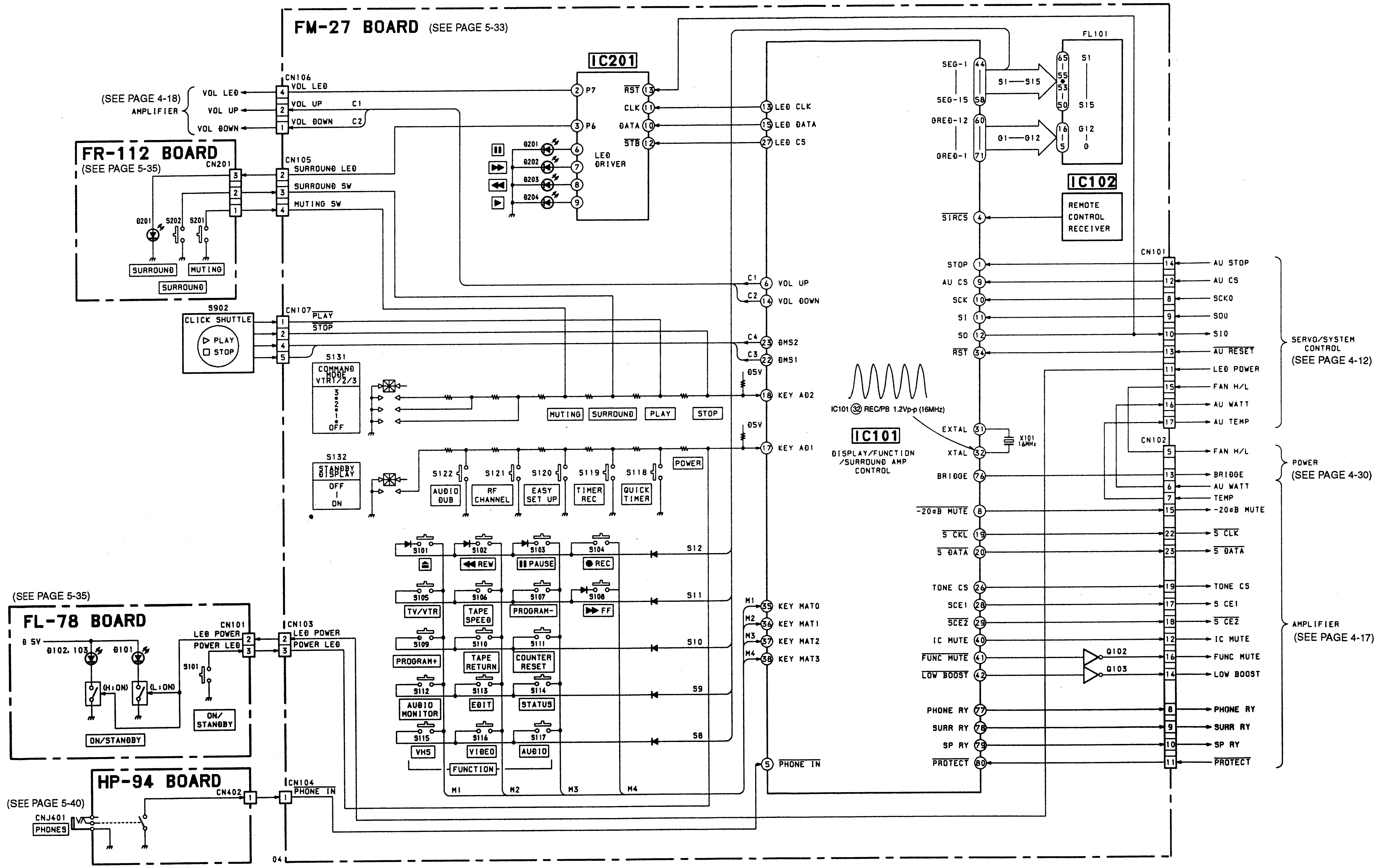
4-3. SERVO/SYSTEM CONTROL BLOCK DIAGRAM



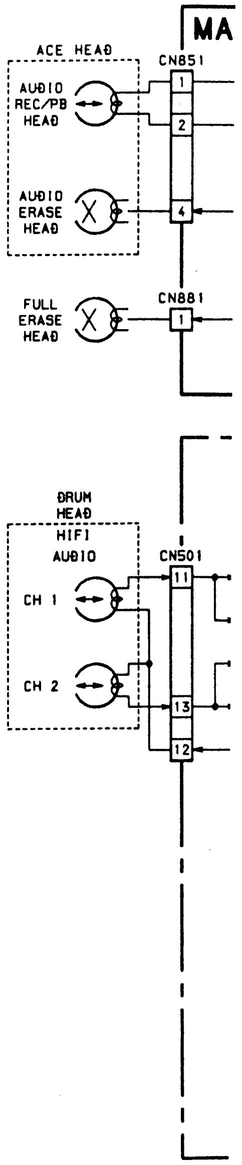
MD-69 BOARD (SEE PAGE 5-25)
M901 DRUM MOTOR (1/2)
DRUM PG
DRUM FG
CN676 (1/2)
CN651
CN904
IC201 (1/2) SERVO CONTROL
IC201 ⑱ REC/PB 5Vp-p (V)
IC201 ⑲ REC/PB 5Vp-p (300Hz)
DRUM PG
DRUM FG
DRUM DA
CAP DA
IC651 (1/3) DRUM ERROR INTEGRATOR
REF 2.5V
MTR 12V
CN675
M901 DRUM MOTOR (2/2)
OUTPUT
MATRIX
HALL DEVICE
M902
M902 CAPSTAN MOTOR (1/2)
CAPSTAN FG
CN671
CN650
CN902
IC101 (1/2) CAPSTAN FG AMP
IC201 ⑳ REC/PB 4.2Vp-p (1.52kHz)
CAP FG
CAP STOP
STEP PLS
IC651 (2/3) CAPSTAN ERROR INTEGRATOR
C.VS
D651
CAP RVS
LIMITER
SW 5V
CNB
IC1
M902 CAPSTAN MOTOR (2/2)
CAPSTAN MOTOR
VS
FRC
TL
VM
VCC
AN 5V
HALL DEVICE
CAP TRQ1
CAP TRQ2
CAP TRQ3
MA-283 BOARD (1/2) (SEE PAGE 5-13)
IC101 (2/2) CTL REC/PB AMP
IC201 ⑦ REC 5Vp-p (V)
5V
VCC
INDEX
REC INH
CTL INDEX
CTL REC
REC CTL
REC CTL AMP
TIMING TEN
PB
REC CTL
3 VALUE DET
REC CTL
OPEN PB
ACE HEAD
CN101
CTL HEAD
CTL (X)
CTL (Y)
PB CTL AMP
DCA
PB CTL AMP
LEVEL DET
PB CTL LOGIC
PB CTL
BIAS 2.4V
PEAK DET
RTG MMV
IC201 ⑥⑦ PB 5Vp-p (V)
DC (24V)
AMP GAIN
FOR CHECK
CTL STEP
RF SWP
IC201 ① REC/PB 5Vp-p (V)
RF SWP → VIDEO (SEE PAGE 4-8)
04
S651 REC PROOF
M903 CAM MOTOR
CN691
IC691 CAM MOTOR DRIVE
CAM (-)
CAM (+)
CAM LOAD
CAM UNLOAD
VCC2 VCC1
13V
S901 ROTARY SWITCH (CAM ENCODER)
CN681
MODE1
MODE2
MODE3
MODE4
Q663 LED DRIVE
TAPE LED D661
D 5V
Q661 TAKE UP END SENSOR
Q662 SUPPLY END SENSOR
PH662 T REEL FG
PH661 S REEL FG
IC651 (3/3) REEL FG AMP
VCC
S901
NTSC PB ON PAL TV 4.43 NTSC
CN103
CN901
(SEE PAGE 5-52)
IO-56 BOARD


MA-283 BOARD (2/2)
(SEE PAGE 5-13)
IC201
SYSTEM CONTROL
IC201 ㊷ REC/PB 4.4Vp-p (16MHz)
Q201
BUFFER
SHARPNESS
D 6V
VDD
AVDD
AVREF
XTAL
EXTAL
X201 16MHz
APC PWM
APC ERROR
RF ENV
APC1
APC2
NOICAN
SP/LP/EP
JOG
V PB
ME SECAM
D MODEL
D204
RENTAL
ORC SETTEI
QVD
QHD ENABLE
D202
V SYNC
IC201 ⑯ REC/PB 4Vp-p (H)
COMP SYNC
EDIT
BLUE BACK ON
NT JUDGE
PAL 60
NTSC
SCLK
SO1
CLK
DATA
S CLK
S IN
POWER CONT 1
MEDIA V IN
V SYNC
CG CS
H DET 2
VIDEO
(SEE PAGE 4-8)
S651
REC PROOF
CN650
CN902
REC PRF
IC691
CAM MOTOR DRIVE
CN651
CN904
CAM (−)
CAM LOAD
CAM (+)
CAM UNLOAD
VCC2
VCC1
13V
CAM 12V
CAM LOAD
CAM UNLOAD
MODE1
MODE2
MODE3
MODE4
Q663
LED DRIVE
END LED
Q661
TAKE UP END SENSOR
Q662
SUPPLY END SENSOR
D 5V
T SENS
S SENS
NT/PAL
AF CLK
AF DATA
AF REC
AF ENV
AF SWP
AF REC P
NA REC P
VA ADJ
FULL ERS
A MUTE
REC
HF ADJ
AUDIO
(SEE PAGE 4-15)
Q202
D 6V
IC651 (3/3)
REEL FG AMP
T REEL FG
S REEL FG
S IN 0
S OUT 0
S CLK
S901
TSC PB
PAL TV
NTSC
CN103
CN901
NTPB SW
ASURA CS
ASURA RESET
POWER SAVE CONT
AV CONT
LINE1
LINE2
5-52)
BOARD
Q131
BUFFER
IC131
CVBS
SDA
DAVN
SCL
IC151
TUNER/TIMER/MODE CONTROL
PDC DAV
SCLO
SDAO
HDET2
CG CS
CGV
SCL
SDA
SW1
SW2
AFT
PLL CLK
PLL DATA
PLL ENABLE
TU ENABLE
TA MUTE
AUTO RESET
POWER SAVE CONT
TUNER
(SEE PAGE 4-24)
CN903
SIO
SOO
SCKO
TU TEMP IN
AU TEMP
AU WATT IN
AU WATT
AU FAN H/L
FAN H/L
AU STOP
AU RESET
AU CS
LED POWER
TIMER/TUNER/MODE CONTROL
(SEE PAGE 4-14)
BZ151
BUZZER
X152
16MHz
IC151 ㉛ REC/PB 4Vp-p (16MHz)
IC153
EEPROM
SK
DO
DI
EEP BUSY
EEP RST
EEP CS
POEWR CONT2
POWER CONT1
POWER CONT0
POWER
(SEE PAGE 4-28)
SOO
SIO
SCKO
CN907
LANC OUT
LANC IN
CHECK PIN
IC152
POWER FAIL DET, RESET PALSE GENE
D151
D152
OUT1
OUT2
POWER FAIL
RST
CN302
CONT A
CONT B
VIDEO I/O
(SEE PAGE 4-20)
C+ CLK
C+ DET
C+ DATA
A OUT CONT1
A OUT CONT2
CONT TV/LINE
AUDIO I/O
(SEE PAGE 4-21)
ASURA CS
SYS RESET
AV CONT
L1 CONT
L2 CONT
VIDEO I/O
(SEE PAGE 4-20)

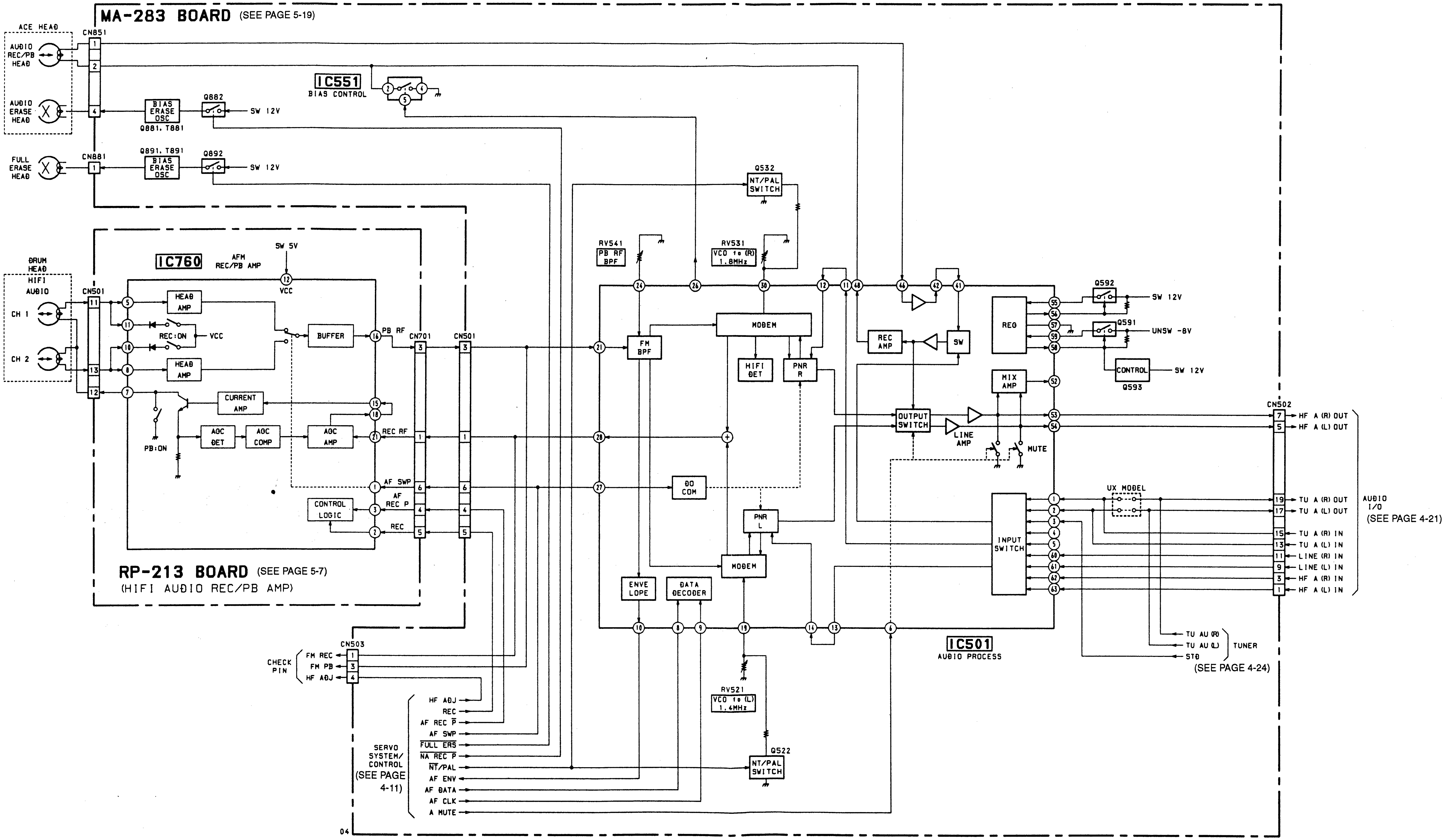
4-4. TIMER/TUNER/MODE CONTROL BLOCK DIAGRAM


FM-27 BOARD (SEE PAGE 5-33)
IC201
LED DRIVER
P7
P6
RST
CLK
DATA
STB
D201
D202
D203
D204
CN106
VOL LED
VOL UP
VOL DOWN
C1
C2
(SEE PAGE 4-18) AMPLIFIER
FR-112 BOARD
(SEE PAGE 5-35)
CN201
D201
S202
S201
SURROUND
MUTING
CN105
SURROUND LED
SURROUND SW
MUTING SW
S902
CLICK SHUTTLE
▷ PLAY
□ STOP
CN107
PLAY
STOP
S131
COMMAND MODE VTR1/2/3
OFF
S132
STANDBY DISPLAY
OFF
ON
MUTING
SURROUND
PLAY
STOP
POWER
S122
S121
S120
S119
S118
AUDIO DUB
RF CHANNEL
EASY SET UP
TIMER REC
QUICK TIMER
S101 ⏏
S102 ◀◀ REW
S103 ❚❚ PAUSE
S104 ● REC
S105 TV/VTR
S106 TAPE SPEED
S107 PROGRAM-
S108 ▶▶ FF
S109 PROGRAM+
S110 TAPE RETURN
S111 COUNTER RESET
S112 AUDIO MONITOR
S113 EDIT
S114 STATUS
S115 VHS
S116 VIDEO
S117 AUDIO
FUNCTION
S12
S11
S10
S9
S8
M1
M2
M3
M4
(SEE PAGE 5-35)
FL-78 BOARD
CN101
LED POWER
POWER LED
B 5V
D102, 103
D101
(H:ON)
(L:ON)
S101
ON/STANDBY
CN103
HP-94 BOARD
(SEE PAGE 5-40)
CN402
CNJ401
PHONES
CN104
PHONE IN
LED CLK
LED DATA
LED CS
VOL UP
VOL DOWN
BMS2
BMS1
D5V
KEY AD2
KEY AD1
KEY MAT0
KEY MAT1
KEY MAT2
KEY MAT3
PHONE IN
FL101
SEG-1
SEG-15
GRID-12
GRID-1
S1—S15
G1—G12
S1
S15
G12
G
IC102
REMOTE CONTROL RECEIVER
STRCS
IC101 ㉜ REC/PB 1.2Vp-p (16MHz)
IC101
DISPLAY/FUNCTION /SURROUND AMP CONTROL
EXTAL
XTAL
X101 16MHz
STOP
AU CS
SCK
SI
SO
RST
BRIDGE
-20dB MUTE
S CKL
S DATA
TONE CS
SCE1
SCE2
IC MUTE
FUNC MUTE
LOW BOOST
Q102
Q103
PHONE RY
SURR RY
SP RY
PROTECT
CN101
AU STOP
AU CS
SCKO
SOU
SIO
AU RESET
LED POWER
FAN H/L
AU WATT
AU TEMP
SERVO/SYSTEM CONTROL (SEE PAGE 4-12)
CN102
FAN H/L
BRIDGE
AU WATT
TEMP
-20dB MUTE
POWER (SEE PAGE 4-30)
S CLK
S DATA
TONE CS
S CE1
S CE2
IC MUTE
FUNC MUTE
LOW BOOST
PHONE RY
SURR RY
SP RY
PROTECT
AMPLIFIER (SEE PAGE 4-17)
04

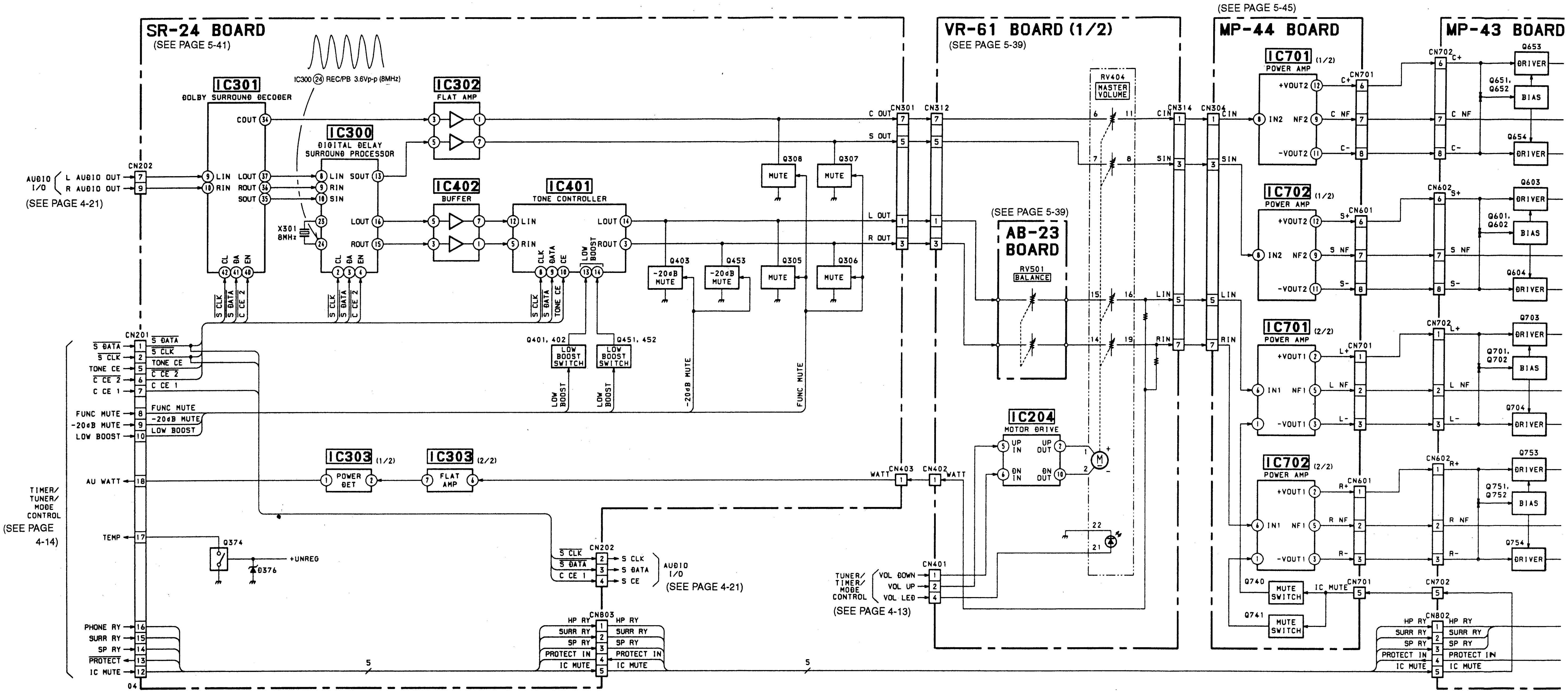
4-5. AUDIO BI

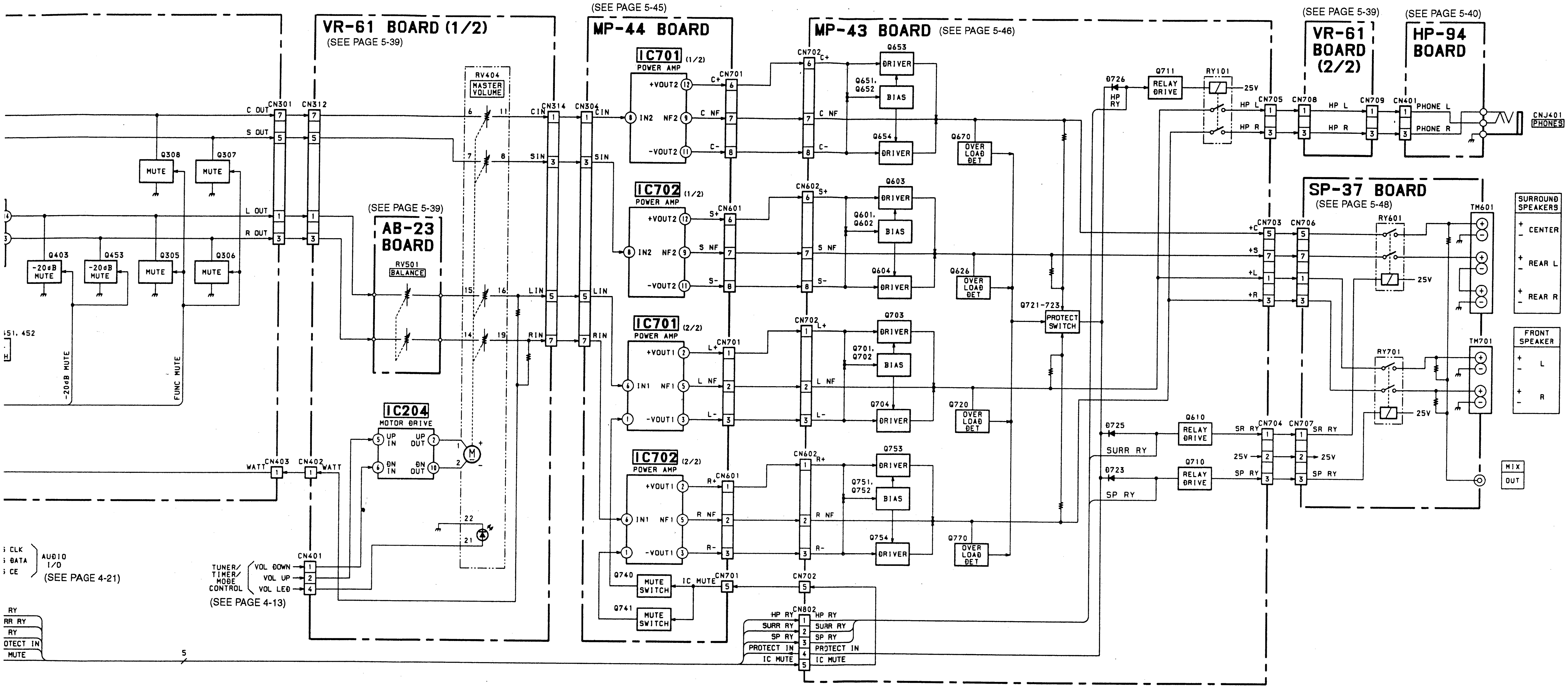

MA
ACE HEAD
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
CN851
FULL ERASE HEAD
CN881
DRUM HEAD
HIFI AUDIO
CH 1
CH 2
CN501

4-5. AUDIO BLOCK DIAGRAM

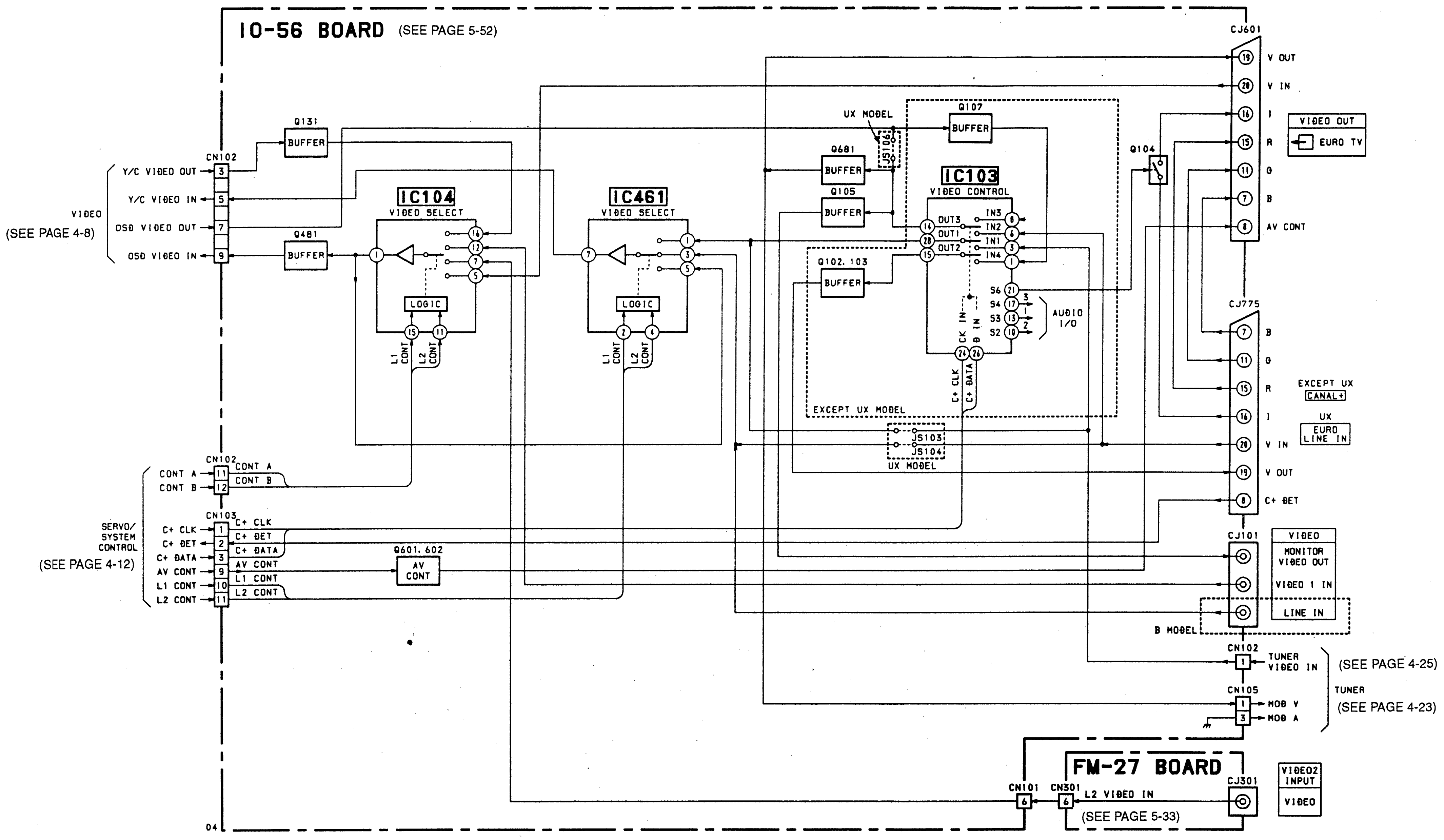

MA-283 BOARD (SEE PAGE 5-19)
ACE HEAD
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
CN851
BIAS ERASE OSC
Q881, T881
Q882
SW 12V
IC551
BIAS CONTROL
FULL ERASE HEAD
CN881
Q891, T891
BIAS ERASE OSC
Q892
SW 12V
DRUM HEAD
HIFI AUDIO
CH 1
CH 2
CN501
IC760
AFM REC/PB AMP
SW 5V
VCC
HEAD AMP
REC:ON
VCC
HEAD AMP
BUFFER
PB RF
CURRENT AMP
PB:ON
AGC DET
AGC COMP
AGC AMP
REC RF
AF SWP
AF REC P
REC
CONTROL LOGIC
CN701
CN501
RP-213 BOARD (SEE PAGE 5-7)
(HIFI AUDIO REC/PB AMP)
CN503
CHECK PIN
FM REC
FM PB
HF ADJ
SERVO SYSTEM/ CONTROL (SEE PAGE 4-11)
HF ADJ
REC
AF REC P
AF SWP
FULL ERS
NA REC P
NT/PAL
AF ENV
AF DATA
AF CLK
A MUTE
04
Q532
NT/PAL SWITCH
RV541
PB RF BPF
RV531
VCO fo (R) 1.8MHz
FM BPF
MODEM
HIFI DET
PNR R
DO COM
PNR L
MODEM
ENVE LOPE
DATA DECODER
RV521
VCO fo (L) 1.4MHz
Q522
NT/PAL SWITCH
REC AMP
SW
REG
MIX AMP
OUTPUT SWITCH
LINE AMP
MUTE
INPUT SWITCH
IC501
AUDIO PROCESS
Q592
SW 12V
Q591
UNSW -8V
CONTROL
Q593
SW 12V
UX MODEL
CN502
HF A (R) OUT
HF A (L) OUT
TU A (R) OUT
TU A (L) OUT
TU A (R) IN
TU A (L) IN
LINE (R) IN
LINE (L) IN
HF A (R) IN
HF A (L) IN
AUDIO I/O (SEE PAGE 4-21)
TU AU (R)
TU AU (L)
STD
TUNER (SEE PAGE 4-24)

4-6. AMPLIFIER BLOCK DIAGRAM

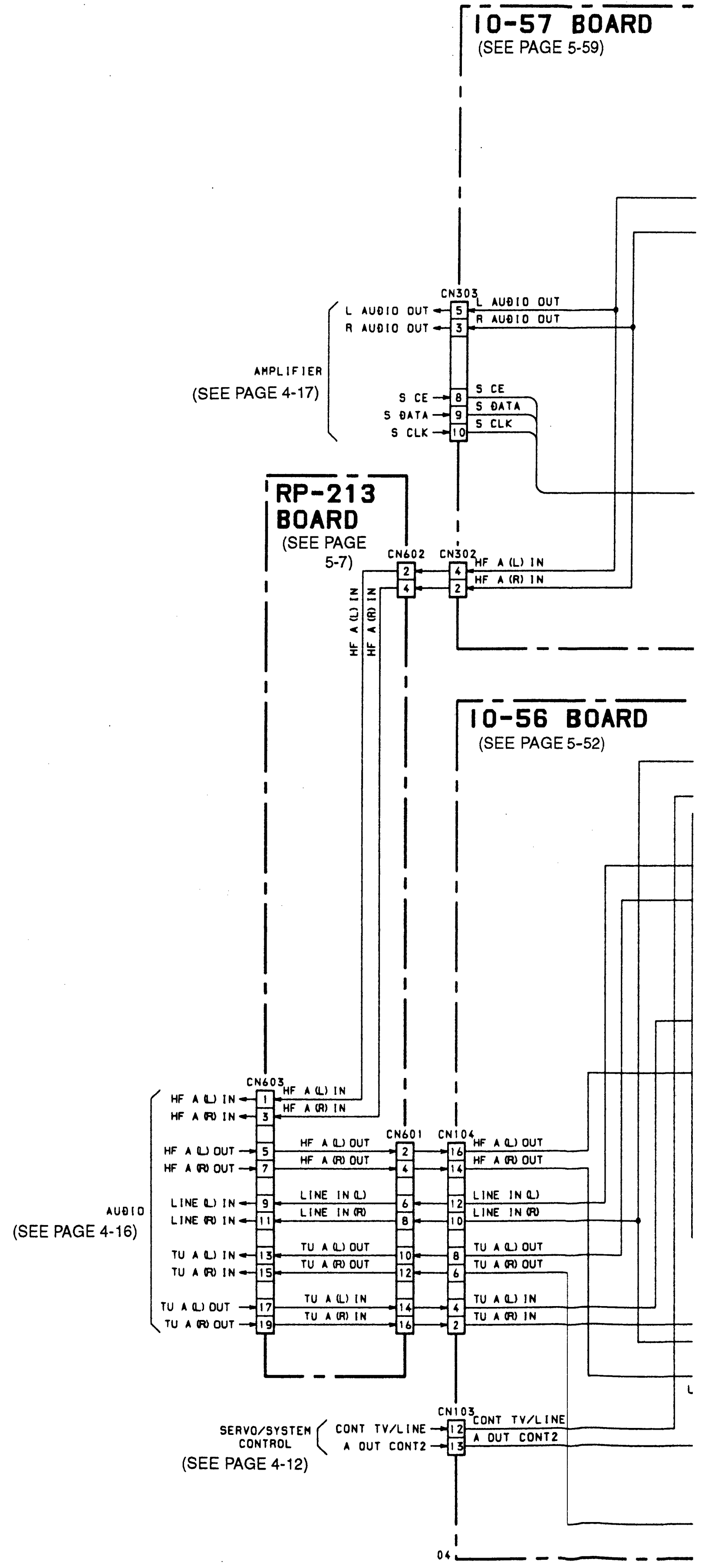

SR-24 BOARD
(SEE PAGE 5-41)
IC301
DOLBY SURROUND DECODER
IC300 ㉔ REC/PB 3.6Vp-p (8MHz)
IC300
DIGITAL DELAY SURROUND PROCESSOR
IC302
FLAT AMP
IC402
BUFFER
IC401
TONE CONTROLLER
AUDIO I/O
L AUDIO OUT
R AUDIO OUT
(SEE PAGE 4-21)
CN202
COUT
LIN
RIN
LOUT
ROUT
SOUT
SIN
X301 8MHz
CL
DA
EN
S CLK
S DATA
C CE 2
TONE CE
LOW BOOST
Q308
Q307
MUTE
Q403
Q453
Q305
Q306
-20dB MUTE
C OUT
S OUT
L OUT
R OUT
CN301
CN312
Q401, 402
Q451, 452
LOW BOOST SWITCH
-20dB MUTE
FUNC MUTE
CN201
S DATA
S CLK
TONE CE
C CE 2
C CE 1
FUNC MUTE
-20dB MUTE
LOW BOOST
AU WATT
TIMER/ TUNER/ MODE CONTROL
(SEE PAGE 4-14)
IC303 (1/2)
POWER DET
IC303 (2/2)
FLAT AMP
TEMP
Q374
D376
+UNREG
CN202
S CLK
S DATA
C CE 1
S CLK
S DATA
S CE
AUDIO I/O
(SEE PAGE 4-21)
PHONE RY
SURR RY
SP RY
PROTECT
IC MUTE
CN803
HP RY
SURR RY
SP RY
PROTECT IN
IC MUTE
5
04
VR-61 BOARD (1/2)
(SEE PAGE 5-39)
RV404
MASTER VOLUME
(SEE PAGE 5-39)
AB-23 BOARD
RV501
BALANCE
IC204
MOTOR DRIVE
UP IN
UP OUT
DN IN
DN OUT
M
WATT
CN403
CN402
CN401
TUNER/ TIMER/ MODE CONTROL
VOL DOWN
VOL UP
VOL LED
(SEE PAGE 4-13)
CN314
CN304
CIN
SIN
LIN
RIN
(SEE PAGE 5-45)
MP-44 BOARD
IC701 (1/2)
POWER AMP
+VOUT2
IN2
NF2
-VOUT2
C+
C NF
C-
CN701
IC702 (1/2)
POWER AMP
S+
S NF
S-
CN601
IC701 (2/2)
POWER AMP
+VOUT1
IN1
NF1
-VOUT1
L+
L NF
L-
IC702 (2/2)
POWER AMP
R+
R NF
R-
Q740
Q741
MUTE SWITCH
IC MUTE
MP-43 BOARD
CN702
CN602
CN802
Q653
Q651, Q652
Q654
Q603
Q601, Q602
Q604
Q703
Q701, Q702
Q704
Q753
Q751, Q752
Q754
DRIVER
BIAS
HP RY
SURR RY
SP RY
PROTECT IN
IC MUTE

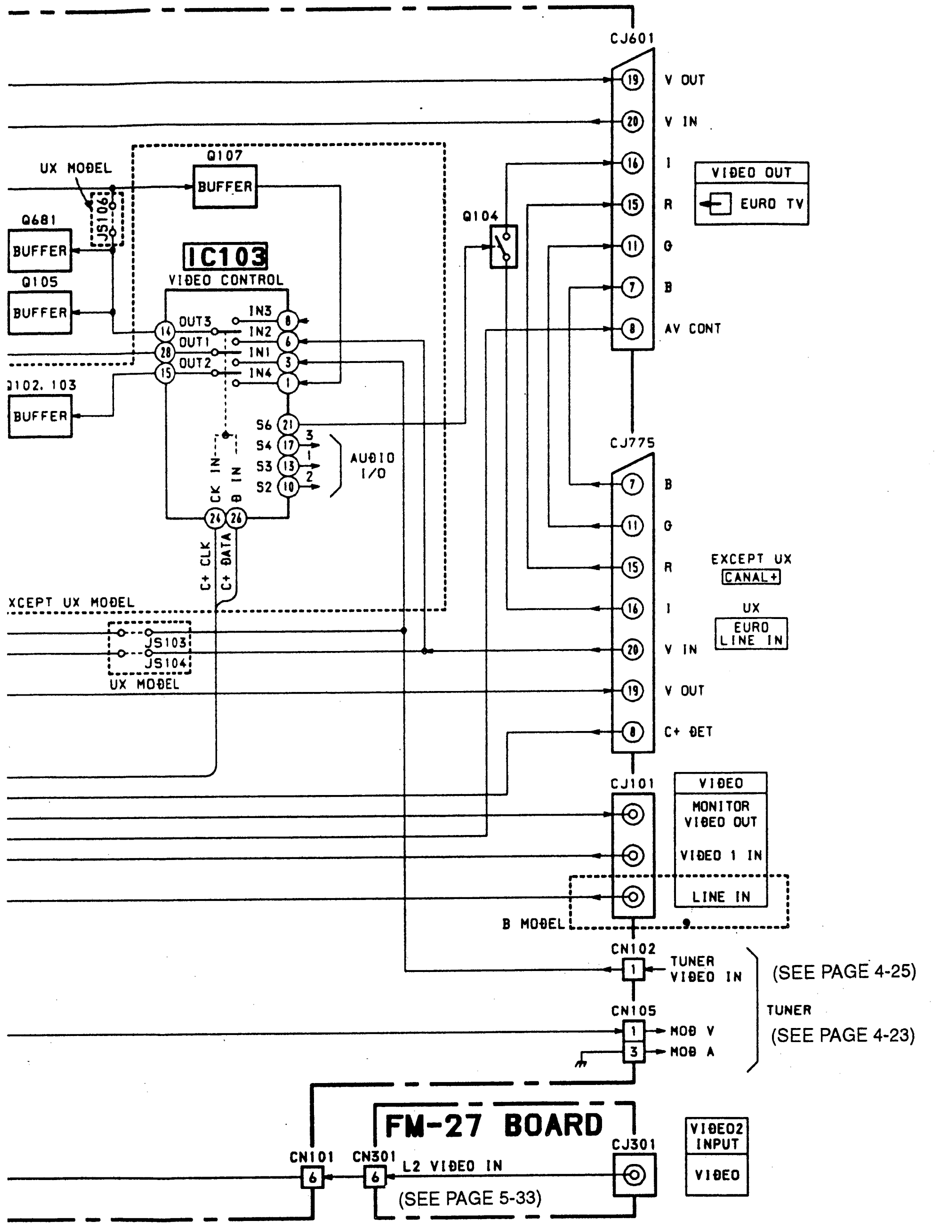

VR-61 BOARD (1/2)
(SEE PAGE 5-39)
(SEE PAGE 5-45)
MP-44 BOARD
MP-43 BOARD
(SEE PAGE 5-46)
(SEE PAGE 5-39)
VR-61 BOARD (2/2)
(SEE PAGE 5-40)
HP-94 BOARD
RV404
MASTER VOLUME
CN301
CN312
CN314
CN304
C OUT
S OUT
L OUT
R OUT
Q308
Q307
MUTE
Q403
Q453
Q305
Q306
-20dB MUTE
451, 452
-20dB MUTE
FUNC MUTE
(SEE PAGE 5-39)
AB-23 BOARD
RV501
BALANCE
IC701 (1/2)
POWER AMP
+VOUT2
IN2
NF2
-VOUT2
IC702 (1/2)
IC701 (2/2)
+VOUT1
IN1
NF1
-VOUT1
IC702 (2/2)
CN701
CN601
CN702
CN602
C+
C NF
C-
S+
S NF
S-
L+
L NF
L-
R+
R NF
R-
CIN
SIN
LIN
RIN
Q653
DRIVER
Q651, Q652
BIAS
Q654
Q603
Q601, Q602
Q604
Q703
Q701, Q702
Q704
Q753
Q751, Q752
Q754
Q670
OVER LOAD DET
Q626
Q720
Q770
Q721-723
PROTECT SWITCH
D726
HP RY
Q711
RELAY DRIVE
RY101
25V
HP L
HP R
CN705
CN708
CN709
CN401
PHONE L
PHONE R
CNJ401
PHONES
SP-37 BOARD
(SEE PAGE 5-48)
CN703
CN706
+C
+S
+L
+R
RY601
RY701
TM601
SURROUND SPEAKERS
CENTER
REAR L
REAR R
TM701
FRONT SPEAKER
L
R
MIX OUT
D725
SURR RY
D723
SP RY
Q610
Q710
SR RY
CN704
CN707
IC204
MOTOR DRIVE
UP IN
UP OUT
DN IN
DN OUT
M
22
21
WATT
CN403
CN402
CN401
TUNER/ TIMER/ MODE CONTROL
VOL DOWN
VOL UP
VOL LED
(SEE PAGE 4-13)
CLK
DATA
CE
AUDIO I/O
(SEE PAGE 4-21)
Q740
MUTE SWITCH
Q741
IC MUTE
CN802
HP RY
SURR RY
SP RY
PROTECT IN
IC MUTE
RY
RR RY
OTECT IN
MUTE
5

4-7. VIDEO I/O BLOCK DIAGRAM

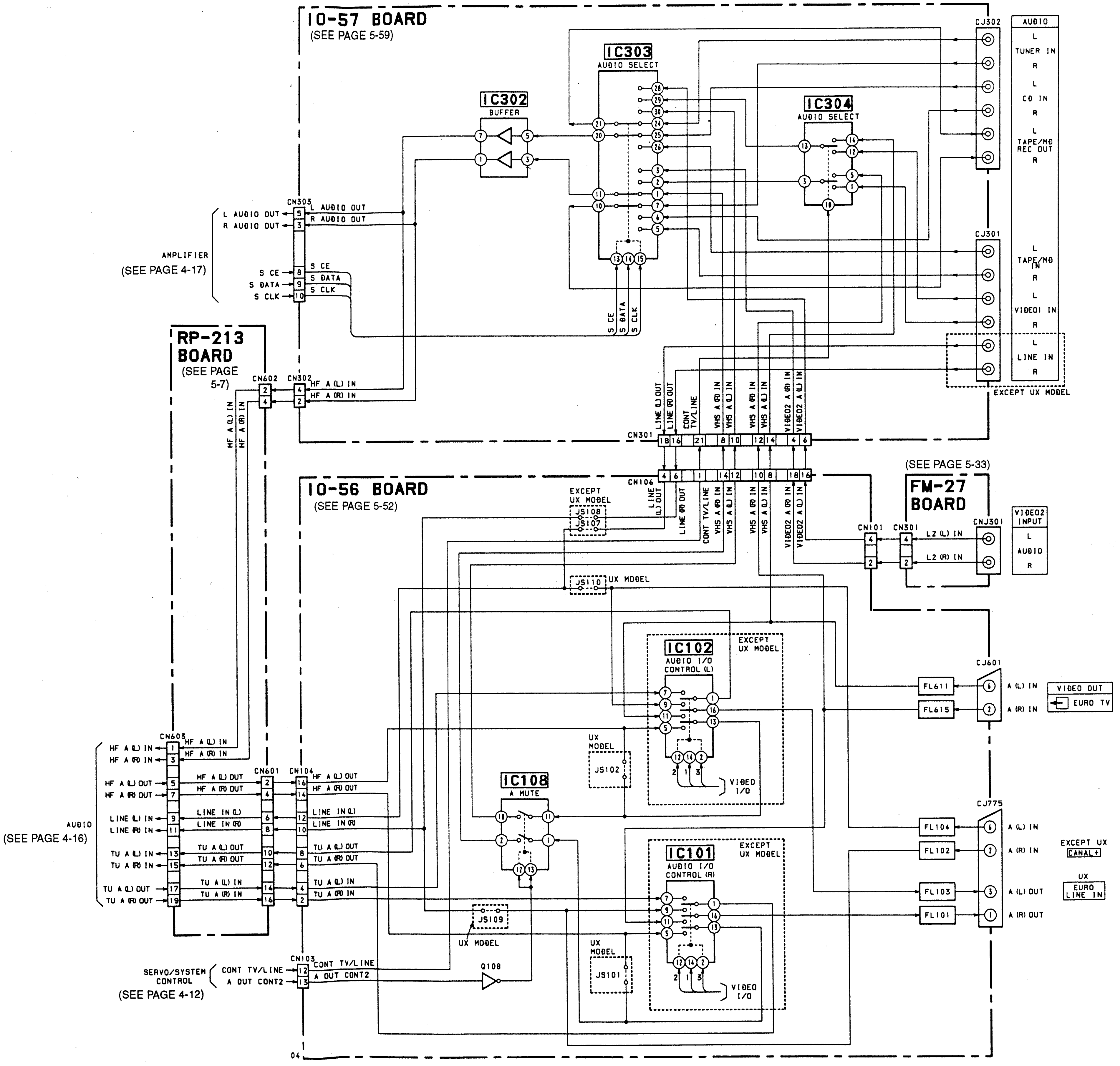

10-56 BOARD (SEE PAGE 5-52)
VIDEO (SEE PAGE 4-8)
Y/C VIDEO OUT
Y/C VIDEO IN
OSD VIDEO OUT
OSD VIDEO IN
CN102
Q131 BUFFER
Q481 BUFFER
IC104 VIDEO SELECT
IC461 VIDEO SELECT
LOGIC
L1 CONT
L2 CONT
UX MODEL
JS106
Q681 BUFFER
Q105 BUFFER
Q102, 103 BUFFER
Q107 BUFFER
IC103 VIDEO CONTROL
OUT3
OUT1
OUT2
IN3
IN2
IN1
IN4
S6
S4
S3
S2
AUDIO I/O
CK IN
D IN
C+ CLK
C+ DATA
EXCEPT UX MODEL
JS103
JS104
UX MODEL
Q104
CJ601
V OUT
V IN
I
R
G
B
AV CONT
VIDEO OUT
EURO TV
CJ775
EXCEPT UX
CANAL+
UX
EURO LINE IN
C+ DET
CONT A
CONT B
SERVO/ SYSTEM CONTROL (SEE PAGE 4-12)
CN103
C+ CLK
C+ DET
C+ DATA
AV CONT
L1 CONT
L2 CONT
Q601, 602 AV CONT
CJ101
VIDEO MONITOR VIDEO OUT
VIDEO 1 IN
LINE IN
B MODEL
CN102
TUNER VIDEO IN
(SEE PAGE 4-25)
CN105
MOD V
MOD A
TUNER (SEE PAGE 4-23)
CN101
CN301
L2 VIDEO IN
FM-27 BOARD (SEE PAGE 5-33)
CJ301
VIDEO2 INPUT
VIDEO
04

4-8. AUDIO I/O BLOCK DIAGRAM

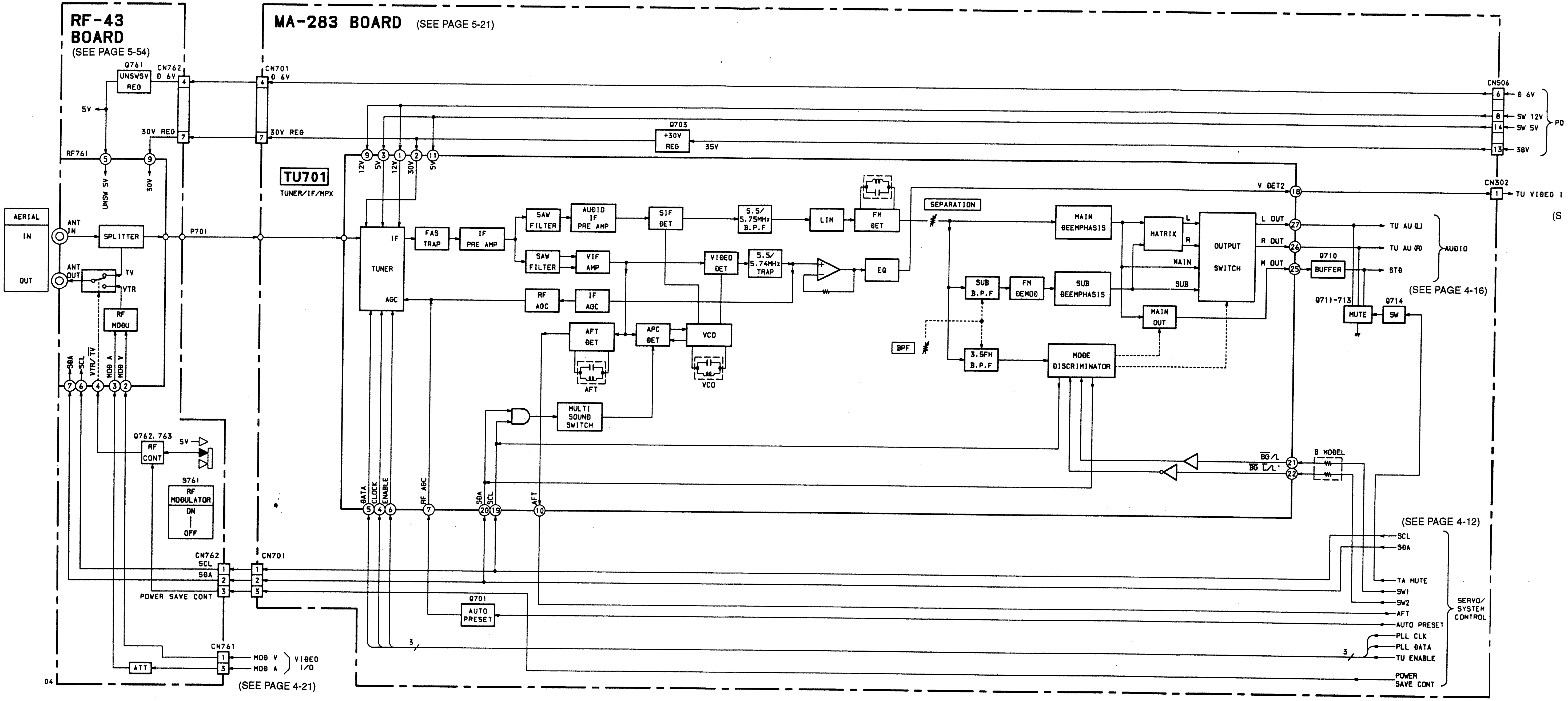

10-57 BOARD (SEE PAGE 5-59)
AMPLIFIER (SEE PAGE 4-17)
CN303
L AUDIO OUT
R AUDIO OUT
S CE
S DATA
S CLK
RP-213 BOARD (SEE PAGE 5-7)
CN602
CN302
HF A (L) IN
HF A (R) IN
10-56 BOARD (SEE PAGE 5-52)
AUDIO (SEE PAGE 4-16)
CN603
HF A (L) IN
HF A (R) IN
HF A (L) OUT
HF A (R) OUT
LINE (L) IN
LINE (R) IN
TU A (L) IN
TU A (R) IN
TU A (L) OUT
TU A (R) OUT
CN601
CN104
LINE IN (L)
LINE IN (R)
SERVO/SYSTEM CONTROL (SEE PAGE 4-12)
CN103
CONT TV/LINE
A OUT CONT2
04


UX MODEL
Q107
BUFFER
JS106
Q681
BUFFER
Q105
BUFFER
IC103
VIDEO CONTROL
OUT3
OUT1
OUT2
IN3
IN2
IN1
IN4
S6
S4
S3
S2
AUDIO I/O
CK IN
B IN
C+ CLK
C+ DATA
Q102, 103
BUFFER
Q104
CJ601
V OUT
V IN
I
R
G
B
AV CONT
VIDEO OUT
EURO TV
CJ775
B
G
R
I
V IN
V OUT
C+ DET
EXCEPT UX
CANAL+
UX
EURO LINE IN
EXCEPT UX MODEL
JS103
JS104
UX MODEL
CJ101
VIDEO
MONITOR VIDEO OUT
VIDEO 1 IN
LINE IN
B MODEL
CN102
TUNER VIDEO IN
(SEE PAGE 4-25)
CN105
MOD V
MOD A
TUNER
(SEE PAGE 4-23)
FM-27 BOARD
CN101
CN301
L2 VIDEO IN
(SEE PAGE 5-33)
CJ301
VIDEO2 INPUT
VIDEO

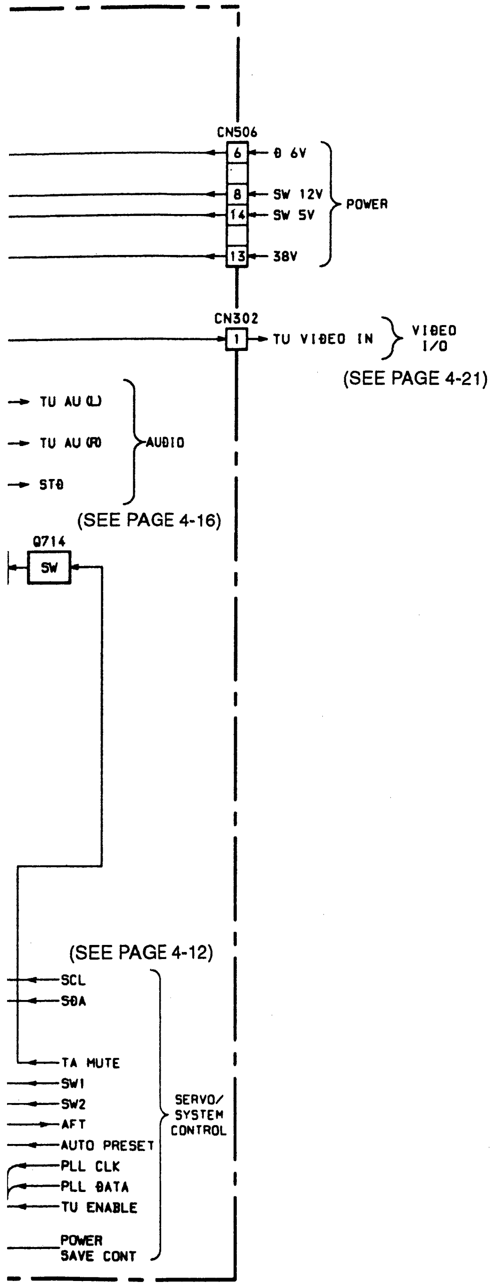
4-8. AUDIO I/O BLOCK DIAGRAM


IO-57 BOARD
(SEE PAGE 5-59)
IC303
AUDIO SELECT
IC302
BUFFER
IC304
AUDIO SELECT
CJ302
AUDIO
L
TUNER IN
R
L
CD IN
R
L
TAPE/MD REC OUT
R
CJ301
L
TAPE/MD IN
R
L
VIDEO1 IN
R
L
LINE IN
R
EXCEPT UX MODEL
CN303
L AUDIO OUT
R AUDIO OUT
S CE
S DATA
S CLK
AMPLIFIER
(SEE PAGE 4-17)
RP-213 BOARD
(SEE PAGE 5-7)
CN602
CN302
HF A (L) IN
HF A (R) IN
CN301
LINE (L) OUT
LINE (R) OUT
CONT TV/LINE
VHS A (R) IN
VHS A (L) IN
VIDEO2 A (R) IN
VIDEO2 A (L) IN
CN106
(SEE PAGE 5-33)
FM-27 BOARD
IO-56 BOARD
(SEE PAGE 5-52)
EXCEPT UX MODEL
JS108
JS107
JS110
UX MODEL
CN101
CN301
L2 (L) IN
L2 (R) IN
CNJ301
VIDEO2 INPUT
L
AUDIO
R
IC102
AUDIO I/O CONTROL (L)
EXCEPT UX MODEL
VIDEO I/O
UX MODEL
JS102
IC108
A MUTE
IC101
AUDIO I/O CONTROL (R)
JS109
JS101
Q108
CJ601
FL611
FL615
A (L) IN
A (R) IN
VIDEO OUT
EURO TV
CJ775
FL104
FL102
FL103
FL101
A (L) IN
A (R) IN
A (L) OUT
A (R) OUT
EXCEPT UX
CANAL+
UX
EURO LINE IN
CN603
HF A (L) IN
HF A (R) IN
HF A (L) OUT
HF A (R) OUT
LINE (L) IN
LINE (R) IN
TU A (L) IN
TU A (R) IN
TU A (L) OUT
TU A (R) OUT
CN601
CN104
AUDIO
(SEE PAGE 4-16)
CN103
CONT TV/LINE
A OUT CONT2
SERVO/SYSTEM CONTROL
(SEE PAGE 4-12)
04

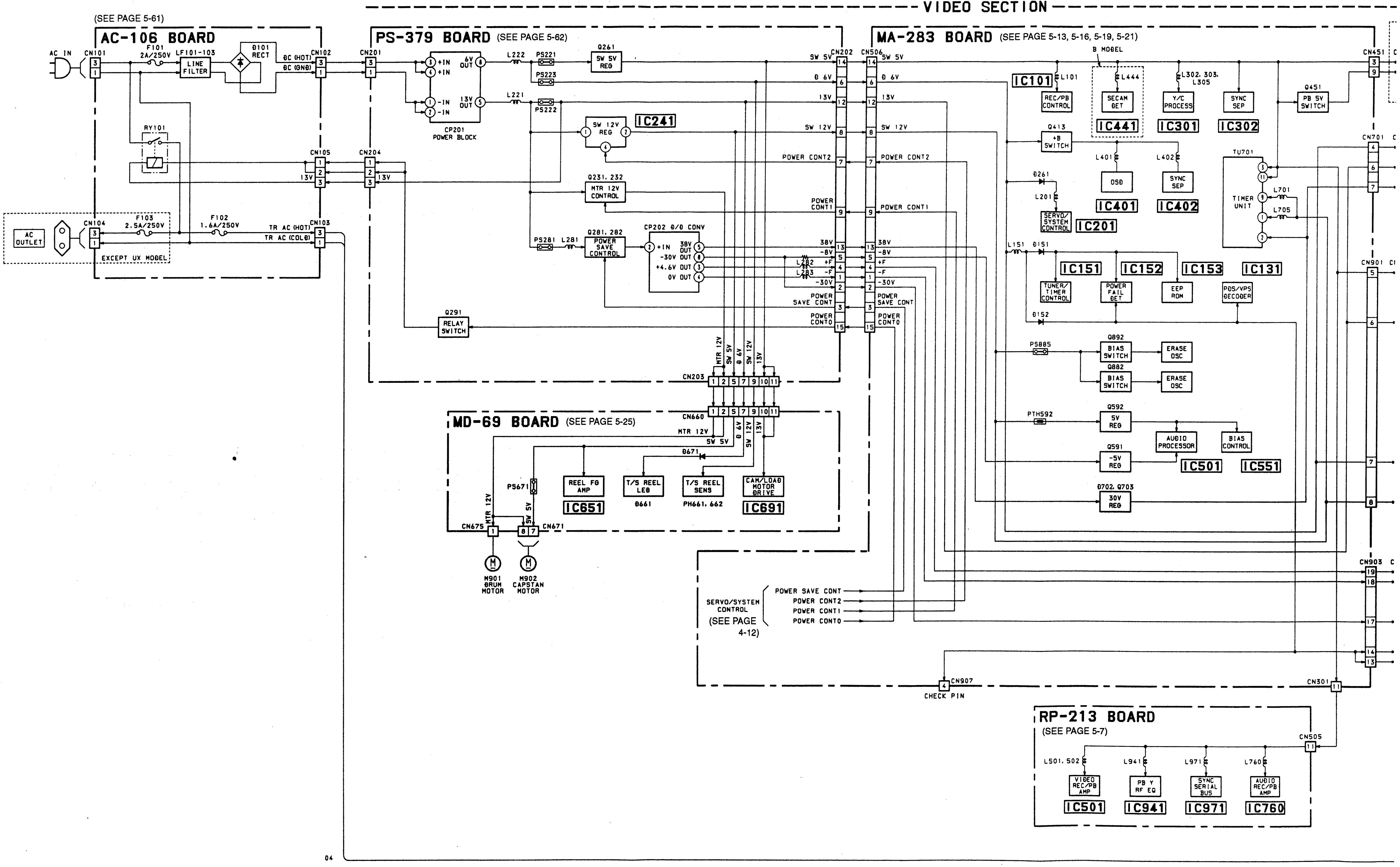
4-9. TUNER BLOCK DIAGRAM

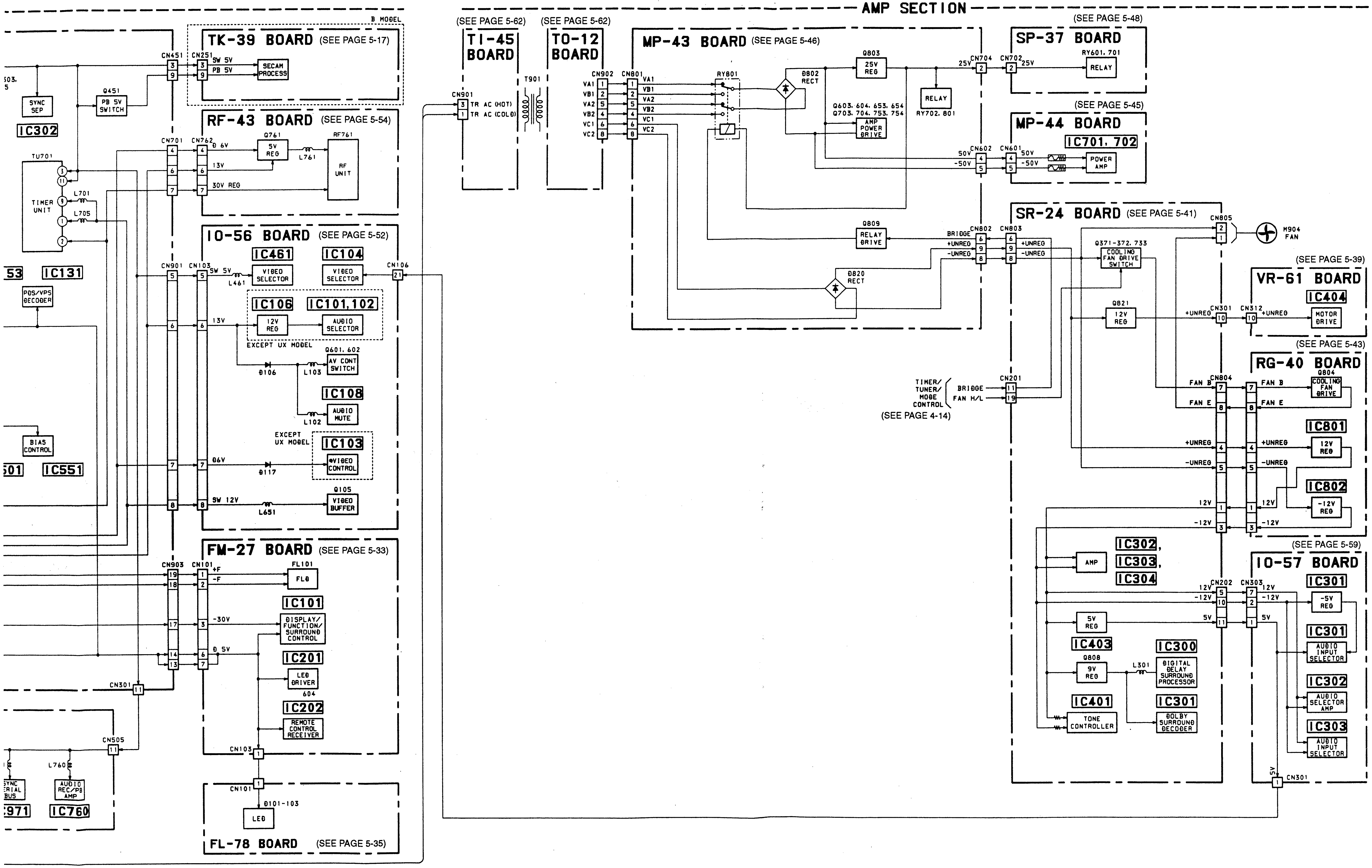


RF-43 BOARD
(SEE PAGE 5-54)
MA-283 BOARD (SEE PAGE 5-21)
Q761
UNSWSV REG
CN762
D 6V
5V
30V REG
RF761
UNSW 5V
30V
AERIAL
IN
OUT
ANT IN
ANT OUT
SPLITTER
TV
VTR
RF MODU
P701
SDA
SCL
VTR/TV
MOD A
MOD V
Q762, 763
RF CONT
5V
S761
RF MODULATOR
ON
OFF
CN762
SCL
SDA
POWER SAVE CONT
CN761
MOD V
MOD A
VIDEO I/O
ATT
(SEE PAGE 4-21)
CN701
D 6V
30V REG
TU701
TUNER/IF/MPX
12V
5V
12V
30V
5V
TUNER
IF
AGC
FAS TRAP
IF PRE AMP
SAW FILTER
AUDIO IF PRE AMP
SAW FILTER
VIF AMP
RF AGC
IF AGC
SIF DET
VIDEO DET
5.5/5.75MHz B.P.F
5.5/5.74MHz TRAP
LIM
FM DET
EQ
AFT DET
AFT
APC DET
VCO
MULTI SOUND SWITCH
Q703
+30V REG
35V
SEPARATION
BPF
MAIN DEEMPHASIS
SUB B.P.F
FM DEMOD
SUB DEEMPHASIS
3.5FH B.P.F
MODE DISCRIMINATOR
MATRIX
L
R
MAIN
SUB
OUTPUT SWITCH
MAIN OUT
V DET2
L OUT
R OUT
M OUT
Q710
BUFFER
Q711-713
MUTE
Q714
SW
B MODEL
BG/L
BG L/L'
DATA
CLOCK
ENABLE
RF AGC
SDA
SCL
AFT
Q701
AUTO PRESET
3
CN506
D 6V
SW 12V
SW 5V
38V
PO
CN302
TU VIDEO
TU AU (L)
TU AU (R)
STD
AUDIO
(SEE PAGE 4-16)
(SEE PAGE 4-12)
SCL
SDA
TA MUTE
SW1
SW2
AFT
AUTO PRESET
PLL CLK
PLL DATA
TU ENABLE
POWER SAVE CONT
SERVO/SYSTEM CONTROL


CN506
6
8
14
13
D 6V
SW 12V
SW 5V
38V
POWER
CN302
1
TU VIDEO IN
VIDEO
I/O
(SEE PAGE 4-21)
TU AU (L)
TU AU (R)
STD
AUDIO
(SEE PAGE 4-16)
Q714
SW
(SEE PAGE 4-12)
SCL
SDA
TA MUTE
SW1
SW2
AFT
AUTO PRESET
PLL CLK
PLL DATA
TU ENABLE
POWER
SAVE CONT
SERVO/
SYSTEM
CONTROL

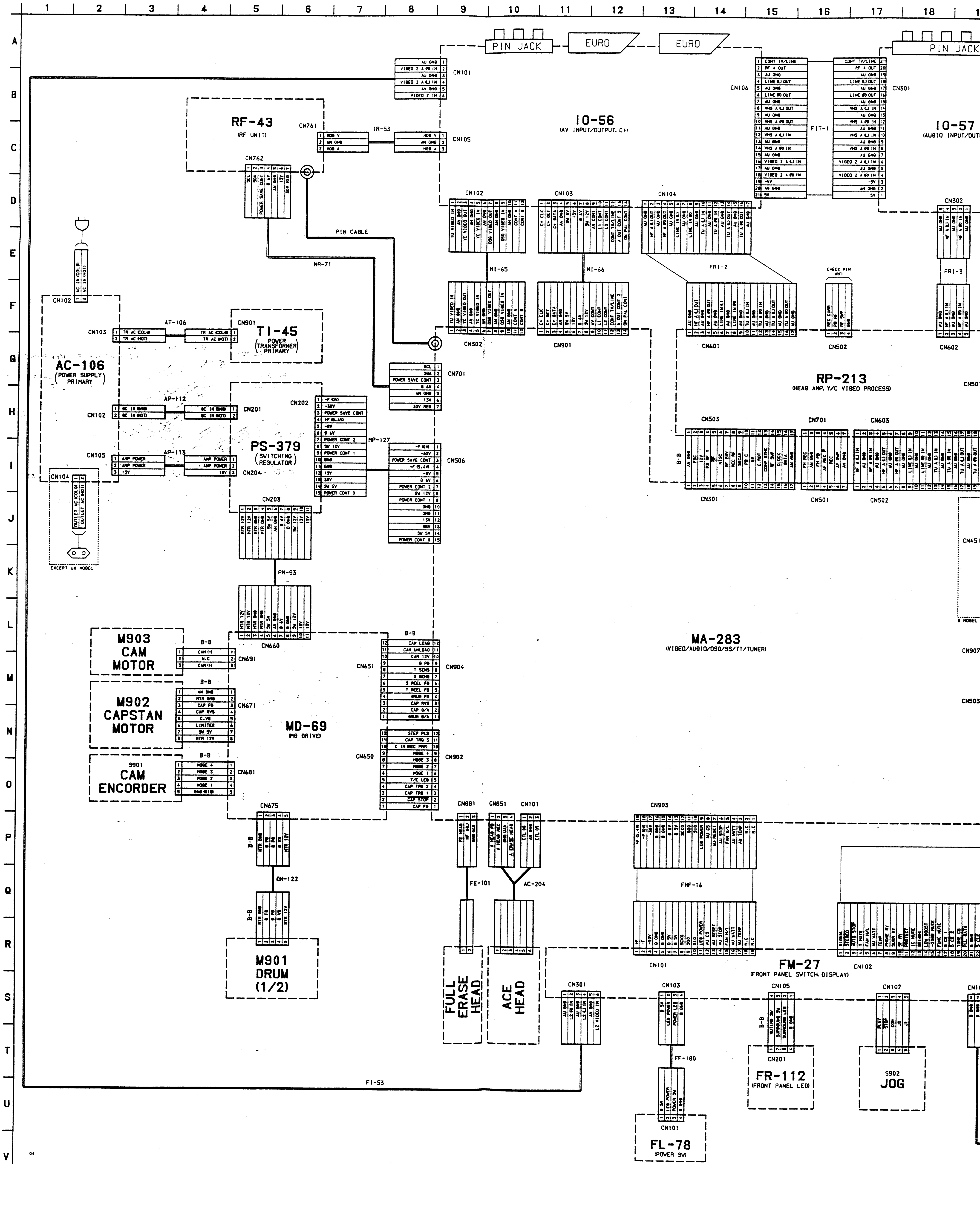
4-10. POWER BLOCK DIAGRAM


VIDEO SECTION
(SEE PAGE 5-61)
AC-106 BOARD
AC IN
CN101
F101 2A/250V
LF101-103
LINE FILTER
D101 RECT
DC (HOT)
DC (GND)
CN102
RY101
CN105
13V
AC OUTLET
CN104
F103 2.5A/250V
F102 1.6A/250V
TR AC (HOT)
TR AC (COLD)
CN103
EXCEPT UX MODEL
PS-379 BOARD (SEE PAGE 5-62)
CN201
+IN
-IN
6V OUT
13V OUT
CP201 POWER BLOCK
L222
PS221
PS223
L221
PS222
Q261 SW 5V REG
SW 12V REG
IC241
CN204
Q231, 232 MTR 12V CONTROL
PS281
L281
Q281, 282 POWER SAVE CONTROL
CP202 D/D CONV
+IN
38V OUT
-30V OUT
+4.6V OUT
0V OUT
Q291 RELAY SWITCH
SW 5V
D 6V
13V
SW 12V
POWER CONT2
POWER CONT1
38V
-8V
+F
-F
-30V
L282
L283
POWER SAVE CONT
POWER CONT0
CN202
CN203
MTR 12V
SW 5V
D 6V
SW 12V
13V
MD-69 BOARD (SEE PAGE 5-25)
CN660
MTR 12V
SW 5V
D671
PS671
REEL FG AMP
IC651
T/S REEL LED
D661
T/S REEL SENS
PH661, 662
CAM/LOAD MOTOR DRIVE
IC691
CN675
CN671
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
SERVO/SYSTEM CONTROL
(SEE PAGE 4-12)
POWER SAVE CONT
POWER CONT2
POWER CONT1
POWER CONT0
CN907
CHECK PIN
MA-283 BOARD (SEE PAGE 5-13, 5-16, 5-19, 5-21)
CN506
SW 5V
D 6V
13V
SW 12V
POWER CONT2
POWER CONT1
38V
-8V
+F
-F
-30V
POWER SAVE CONT
POWER CONT0
B MODEL
IC101
L101
REC/PB CONTROL
L444
SECAM DET
IC441
L302, 303, L305
Y/C PROCESS
IC301
SYNC SEP
IC302
Q451 PB 5V SWITCH
CN451
Q413 +B SWITCH
L401
OSD
IC401
L402
SYNC SEP
IC402
TU701
TIMER UNIT
L701
L705
CN701
D261
L201
SERVO/SYSTEM CONTROL
IC201
L151
D151
IC151
TUNER/TIMER CONTROL
IC152
POWER FAIL DET
IC153
EEP ROM
IC131
PDS/VPS DECODER
D152
CN901
PS885
Q892 BIAS SWITCH
Q882 BIAS SWITCH
ERASE OSC
ERASE OSC
PTH592
Q592 5V REG
AUDIO PROCESSOR
BIAS CONTROL
Q591 -5V REG
IC501
IC551
Q702, Q703 30V REG
CN903
CN301
RP-213 BOARD
(SEE PAGE 5-7)
CN505
L501, 502
L941
L971
L760
VIDEO REC/PB AMP
IC501
PB Y RF EQ
IC941
SYNC SERIAL BUS
IC971
AUDIO REC/PB AMP
IC760
04

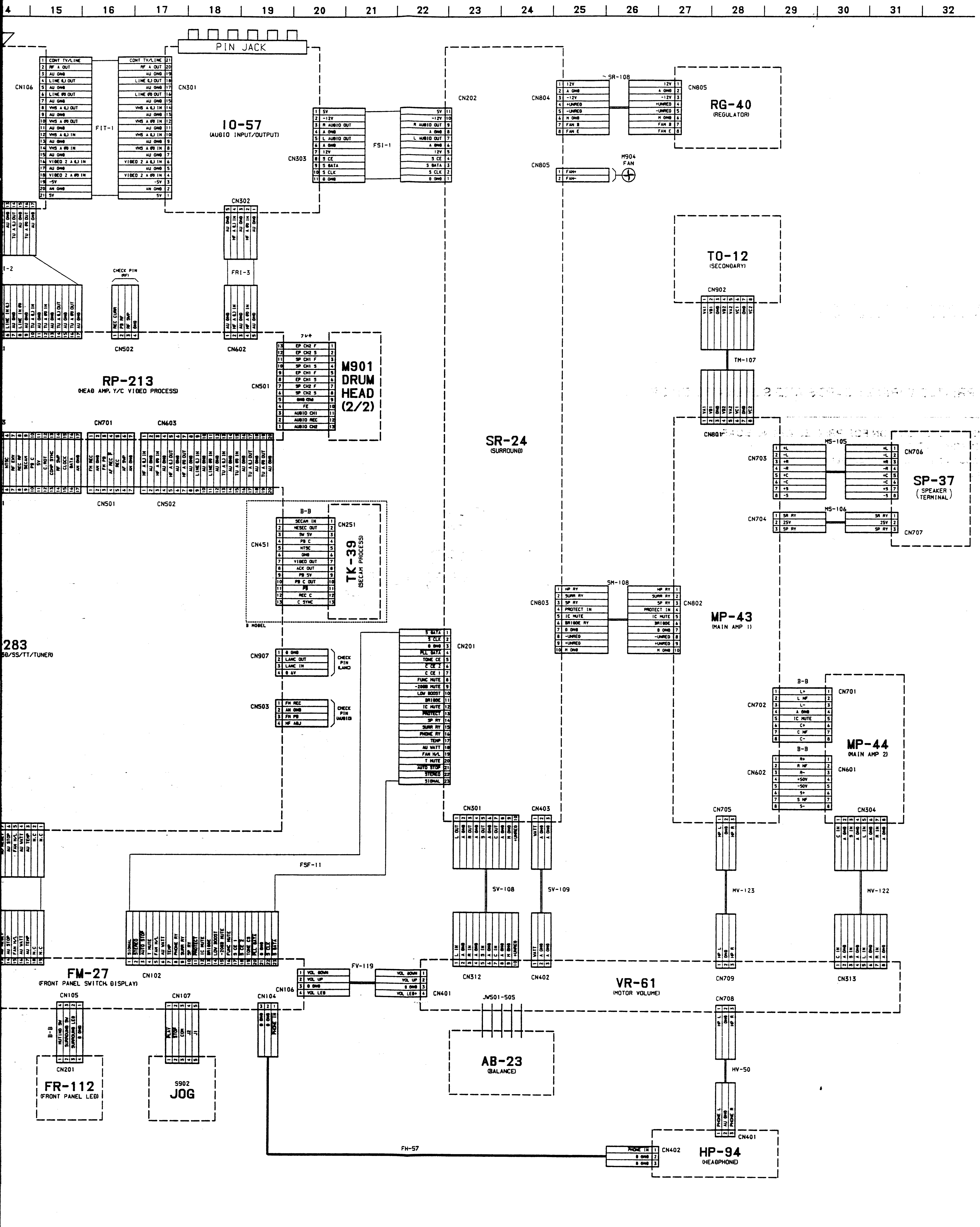

AMP SECTION
B MODEL
TK-39 BOARD (SEE PAGE 5-17)
CN451
CN251
SW 5V
PB 5V
SECAM PROCESS
SYNC SEP
IC302
Q451
PB 5V SWITCH
RF-43 BOARD (SEE PAGE 5-54)
CN701
CN762
D 6V
Q761
5V REG
L761
RF761
RF UNIT
13V
30V REG
TU701
TIMER UNIT
L701
L705
IO-56 BOARD (SEE PAGE 5-52)
IC461
IC104
CN901
CN103
SW 5V
L461
VIDEO SELECTOR
CN106
IC106
IC101,102
12V REG
AUDIO SELECTOR
EXCEPT UX MODEL
Q601, 602
AV CONT SWITCH
D106
L103
IC108
AUDIO MUTE
L102
EXCEPT UX MODEL
IC103
VIDEO CONTROL
D6V
D117
Q105
SW 12V
L651
VIDEO BUFFER
IC131
POS/VPS DECODER
BIAS CONTROL
IC551
FM-27 BOARD (SEE PAGE 5-33)
CN903
CN101
+F
-F
FL101
FLD
IC101
-30V
DISPLAY/ FUNCTION/ SURROUND CONTROL
D 5V
IC201
LED DRIVER
604
IC202
REMOTE CONTROL RECEIVER
CN301
CN103
CN505
L760
SYNC SERIAL BUS
AUDIO REC/PB AMP
IC760
CN101
D101-103
LED
FL-78 BOARD (SEE PAGE 5-35)
(SEE PAGE 5-62)
TI-45 BOARD
(SEE PAGE 5-62)
TO-12 BOARD
CN901
TR AC (HOT)
TR AC (COLD)
T901
CN902
CN801
VA1
VB1
VA2
VB2
VC1
VC2
MP-43 BOARD (SEE PAGE 5-46)
RY801
D802 RECT
Q803
25V REG
Q603, 604, 653, 654
Q703, 704, 753, 754
AMP POWER DRIVE
RELAY
RY702, 801
Q809
RELAY DRIVE
D820 RECT
BRIDGE
+UNREG
-UNREG
CN802
25V
CN704
CN702
50V
-50V
CN602
CN601
(SEE PAGE 5-48)
SP-37 BOARD
RY601, 701
RELAY
(SEE PAGE 5-45)
MP-44 BOARD
IC701, 702
POWER AMP
SR-24 BOARD (SEE PAGE 5-41)
CN803
CN805
M904 FAN
Q371-372, 733
COOLING FAN DRIVE SWITCH
Q821
12V REG
TIMER/ TUNER/ MODE CONTROL
(SEE PAGE 4-14)
CN201
BRIDGE
FAN H/L
(SEE PAGE 5-39)
VR-61 BOARD
IC404
CN301
CN312
MOTOR DRIVE
(SEE PAGE 5-43)
RG-40 BOARD
Q804
CN804
FAN B
FAN E
COOLING FAN DRIVE
IC801
12V REG
IC802
-12V REG
12V
-12V
IC302,
IC303,
IC304
AMP
(SEE PAGE 5-59)
IO-57 BOARD
CN202
CN303
IC301
-5V REG
5V
5V REG
IC403
Q808
9V REG
L301
IC300
DIGITAL DELAY SURROUND PROCESSOR
IC401
TONE CONTROLLER
IC301
DOLBY SURROUND DECODER
AUDIO INPUT SELECTOR
IC302
AUDIO SELECTOR AMP
IC303
AUDIO INPUT SELECTOR
CN301

SECTION 5
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

5-1. FRAME SCHEMATIC DIAGRAM



RF-43
(RF UNIT)
IO-56
(AV INPUT/OUTPUT, C+)
IO-57
(AUDIO INPUT/OUTPUT
PIN JACK
EURO
EURO
PIN JACK
FIT-1
FRI-2
FRI-3
MI-65
MI-66
MR-71
IR-53
PIN CABLE
AC-106
(POWER SUPPLY PRIMARY)
TI-45
(POWER TRANSFORMER PRIMARY)
AT-106
AP-112
AP-113
PS-379
(SWITCHING REGULATOR)
MP-127
PM-93
EXCEPT UK MODEL
RP-213
(HEAD AMP, Y/C VIDEO PROCESS)
MA-283
(VIDEO/AUDIO/OSD/SS/TT/TUNER)
M903
CAM
MOTOR
M902
CAPSTAN
MOTOR
S901
CAM
ENCORDER
MD-69
(MD DRIVE)
OM-122
M901
DRUM
(1/2)
FE-101
AC-204
FULL
ERASE
HEAD
ACE
HEAD
FMF-16
FM-27
(FRONT PANEL SWITCH, DISPLAY)
FF-180
FL-78
(POWER SW)
FR-112
(FRONT PANEL LED)
S902
JOG
FI-53
CHECK PIN (RF)
B-B


4
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32
PIN JACK
CN106
FIT-1
CN301
IO-57
(AUDIO INPUT/OUTPUT)
CN303
FSI-1
CN202
CN804
SR-108
CN805
RG-40
(REGULATOR)
M904
FAN
FAN+
FAN-
CN302
FRI-3
TO-12
(SECONDARY)
CN902
TM-107
CN801
CHECK PIN
CN502
CN602
RP-213
(HEAD AMP, Y/C VIDEO PROCESS)
CN501
M901
DRUM
HEAD
(2/2)
SR-24
(SURROUND)
CN703
MS-105
CN706
SP-37
(SPEAKER TERMINAL)
CN704
MS-106
CN707
CN701
CN603
CN501
CN502
B-B
CN251
CN451
TK-39
(SECAM PROCESS)
B MODEL
CN803
SM-108
CN802
MP-43
(MAIN AMP 1)
283
SB/SS/TT/TUNER)
CN907
CHECK PIN (LANC)
CN503
CHECK PIN (AUDIO)
CN201
CN702
B-B
CN701
MP-44
(MAIN AMP 2)
CN602
CN601
CN301
CN403
CN705
CN304
FSF-11
SV-108
SV-109
MV-123
MV-122
FM-27
(FRONT PANEL SWITCH, DISPLAY)
CN102
FV-119
CN106
CN401
CN312
CN402
VR-61
(MOTOR VOLUME)
CN709
CN313
CN105
CN107
CN104
JW501-505
CN708
B-B
CN201
FR-112
(FRONT PANEL LED)
S902
JOG
AB-23
(BALANCE)
HV-50
CN401
FH-57
CN402
HP-94
(HEADPHONE)

5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

• For printed wiring boards.

- ○ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side. *
- Circled numbers refer to waveforms.

• For schematic diagrams.

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
- Chip resistor are 1/8W or 1/10W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- □ : panel designation.
- △ : internal componant.
- □ : adjustment for repair. *
- ▬ : B + Line. *
- ╍ : B – Line. *
- ⇨ : IN/OUT direction of (+, –) B line. *
- Circled numbers refer to waveforms. *
- Voltages are dc between ground and measurement points. *
- Readings are taken with a color-bar signal input. *
- Readings are taken with a digital multimeter (DC10MΩ). *
- Voltage variations may be noted due to normal production tolerances. *

- Extension cable

① FM-27 Board
- FM-27 board CN102⟷SR-24 board CN201
  Part No. J-6090-063-A (23pin)

② MA-283 Board
- MA-283 board CN903⟷FM-27 board CN101
  Part No. J-6090-064-A (19pin)

③ MD-69 Board
- MD-69 board CN650⟷MA-283 board CN902
- MD-69 board CN651⟷MA-283 board CN904
  Part No. J-6090-066-A (12pin)

④ IO-56 Board
- IO-56 board CN104⟷RP-213 board CN601
  Part No. J-6090-065-A (17pin)

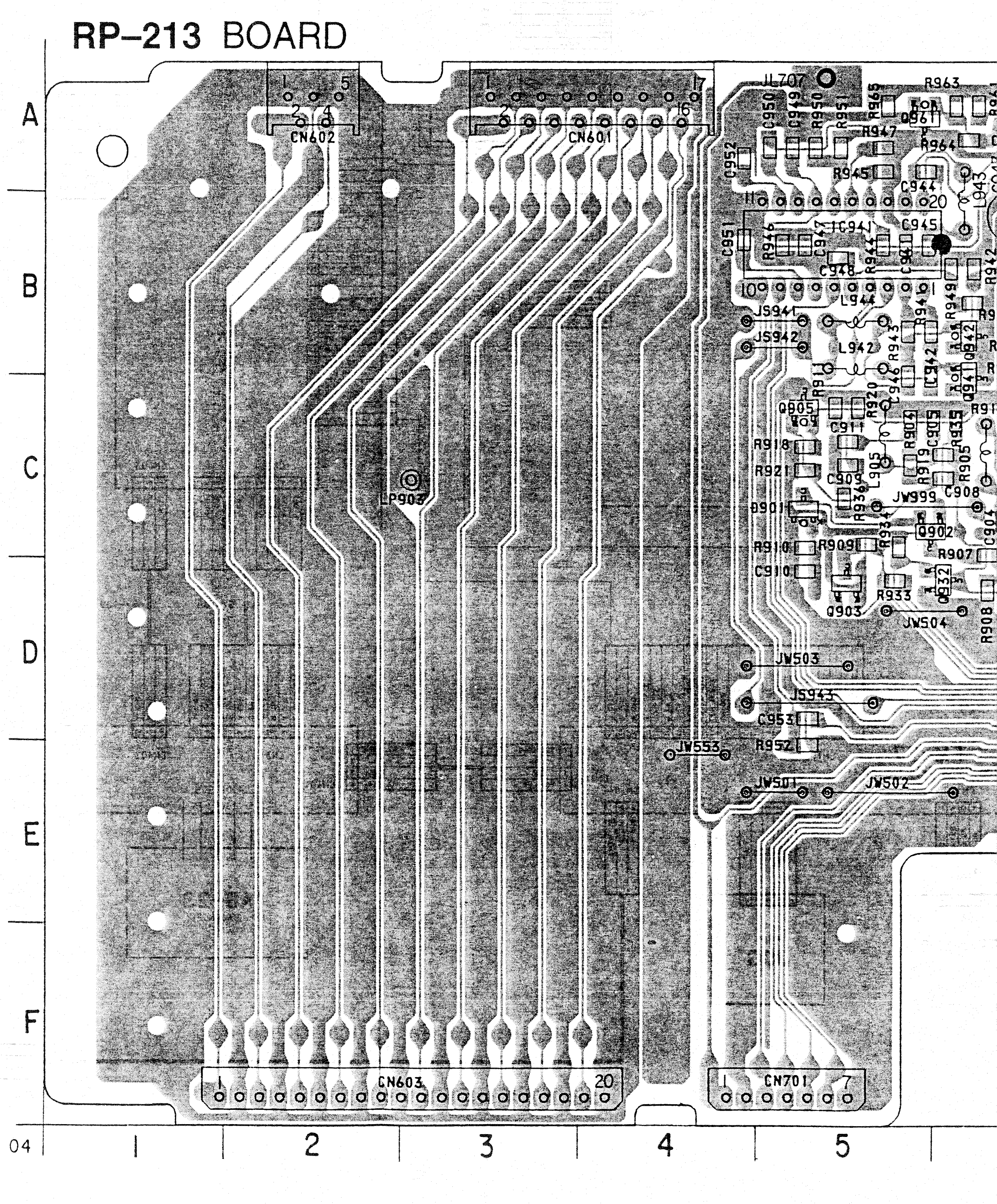
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

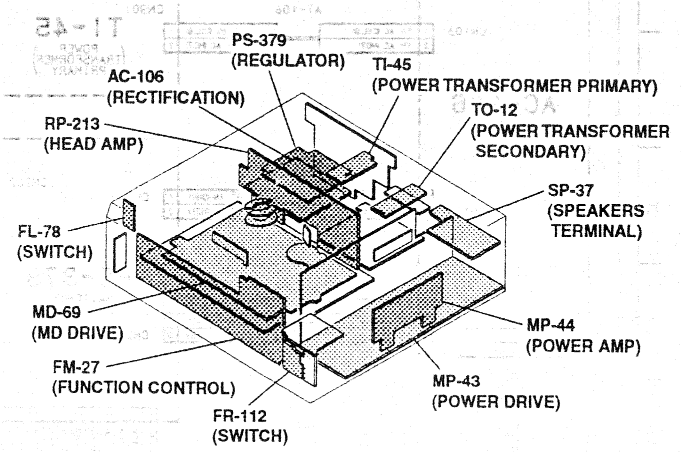
When indicating parts by reference number, please include the board name.

* : indicated by the color red.

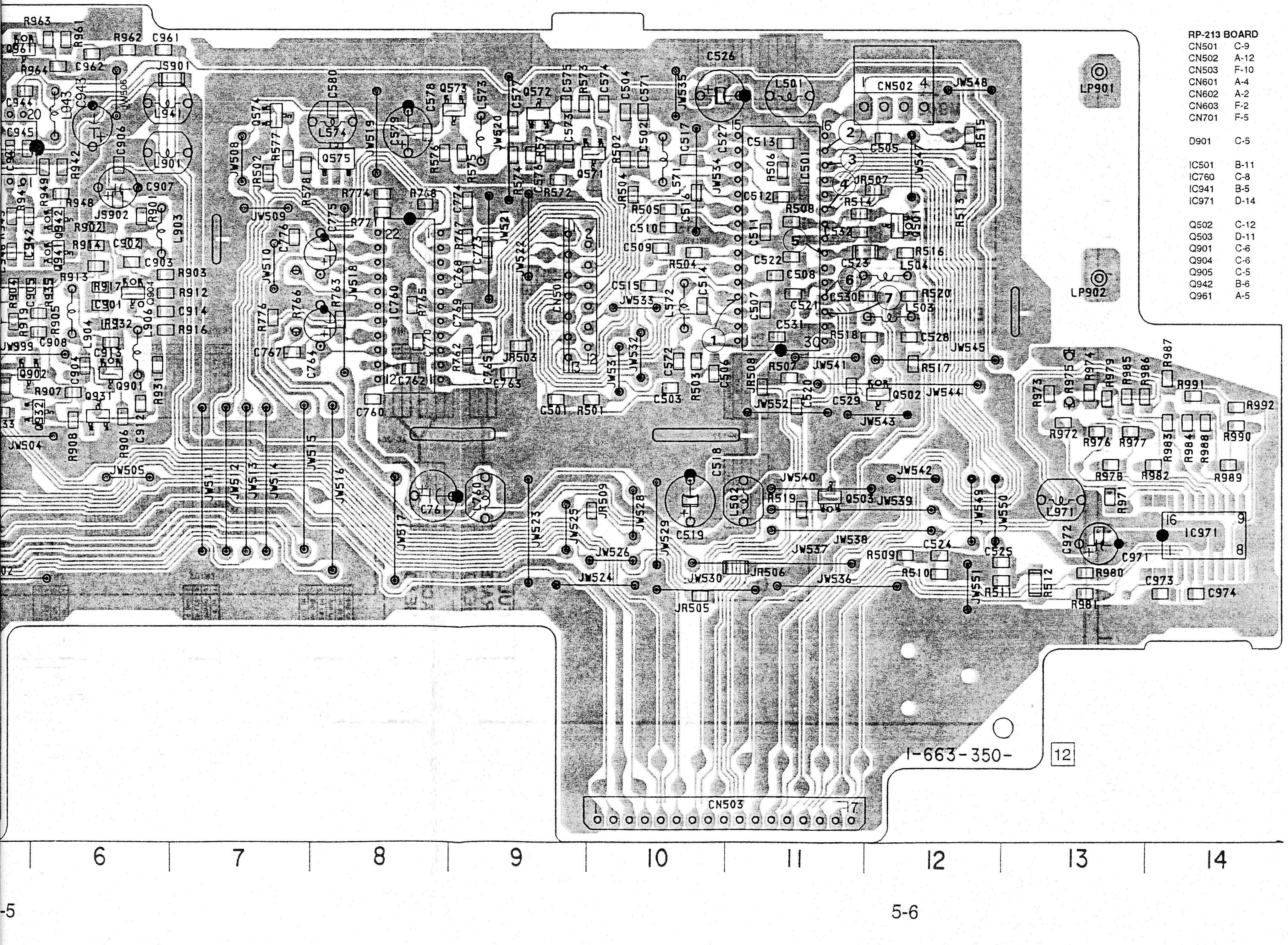
RP-213 (HEAD AMP) PRINTED WIRING BOARD

– Ref. No. RP-213 BOARD : 1,000 series –


RP–213 BOARD
A
B
C
D
E
F
04
1
2
3
4
5
CN602
CN601
CN603
CN701
LP903
JL707
R963
R964
R945
C944
C945
C951
C952
C947
C948
L944
L942
JS941
JS942
R918
R921
C909
C908
C910
R907
R933
Q903
Q902
JW999
JW503
JW504
JS943
C953
R952
JW553
JW501
JW502
R908


PS-379
(REGULATOR)
TI-45
(POWER TRANSFORMER PRIMARY)
AC-106
(RECTIFICATION)
TO-12
(POWER TRANSFORMER
SECONDARY)
RP-213
(HEAD AMP)
SP-37
(SPEAKERS
TERMINAL)
FL-78
(SWITCH)
MD-69
(MD DRIVE)
MP-44
(POWER AMP)
FM-27
(FUNCTION CONTROL)
MP-43
(POWER DRIVE)
FR-112
(SWITCH)

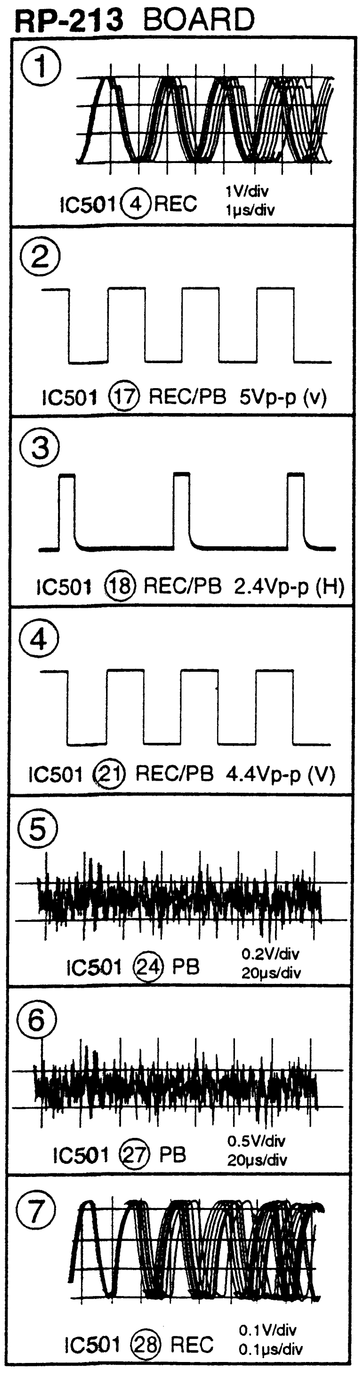
- There are few cases that the part isn't mounted in this model is printed on this diagram.

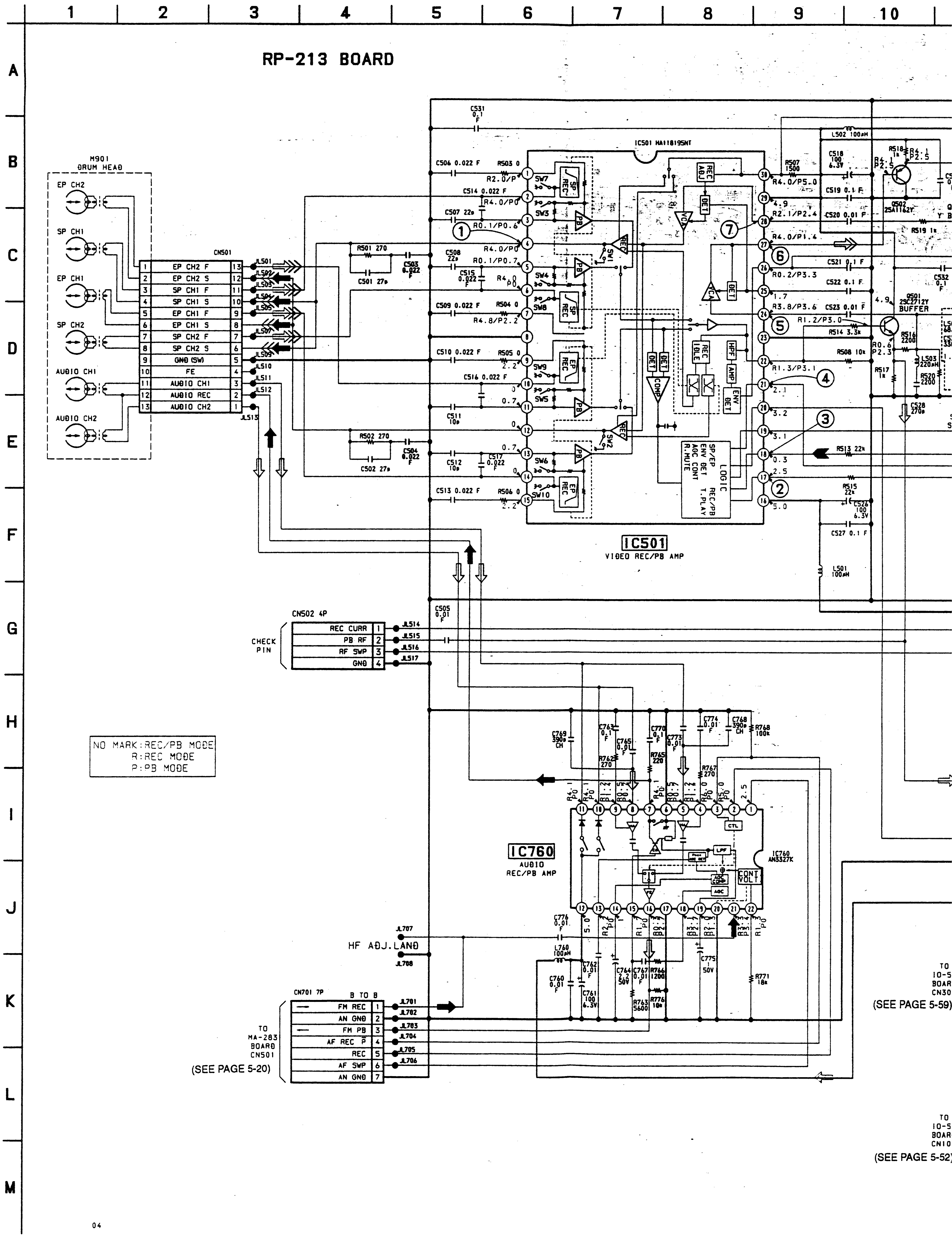

CN502
CN503
CN501
IC501
IC760
IC941
IC971
LP901
LP902
1-663-350-
12
6
7
8
9
10
11
12
13
14

RP-213 BOARD	
CN501	C-9
CN502	A-12
CN503	F-10
CN601	A-4
CN602	A-2
CN603	F-2
CN701	F-5
D901	C-5
IC501	B-11
IC760	C-8
IC941	B-5
IC971	D-14
Q502	C-12
Q503	D-11
Q901	C-6
Q904	C-6
Q905	C-5
Q942	B-6
Q961	A-5

RP-213 (HEAD AMP) SCHEMATIC DIAGRAM

– Ref. No. RP-213 BOARD : 1,000 series –




1
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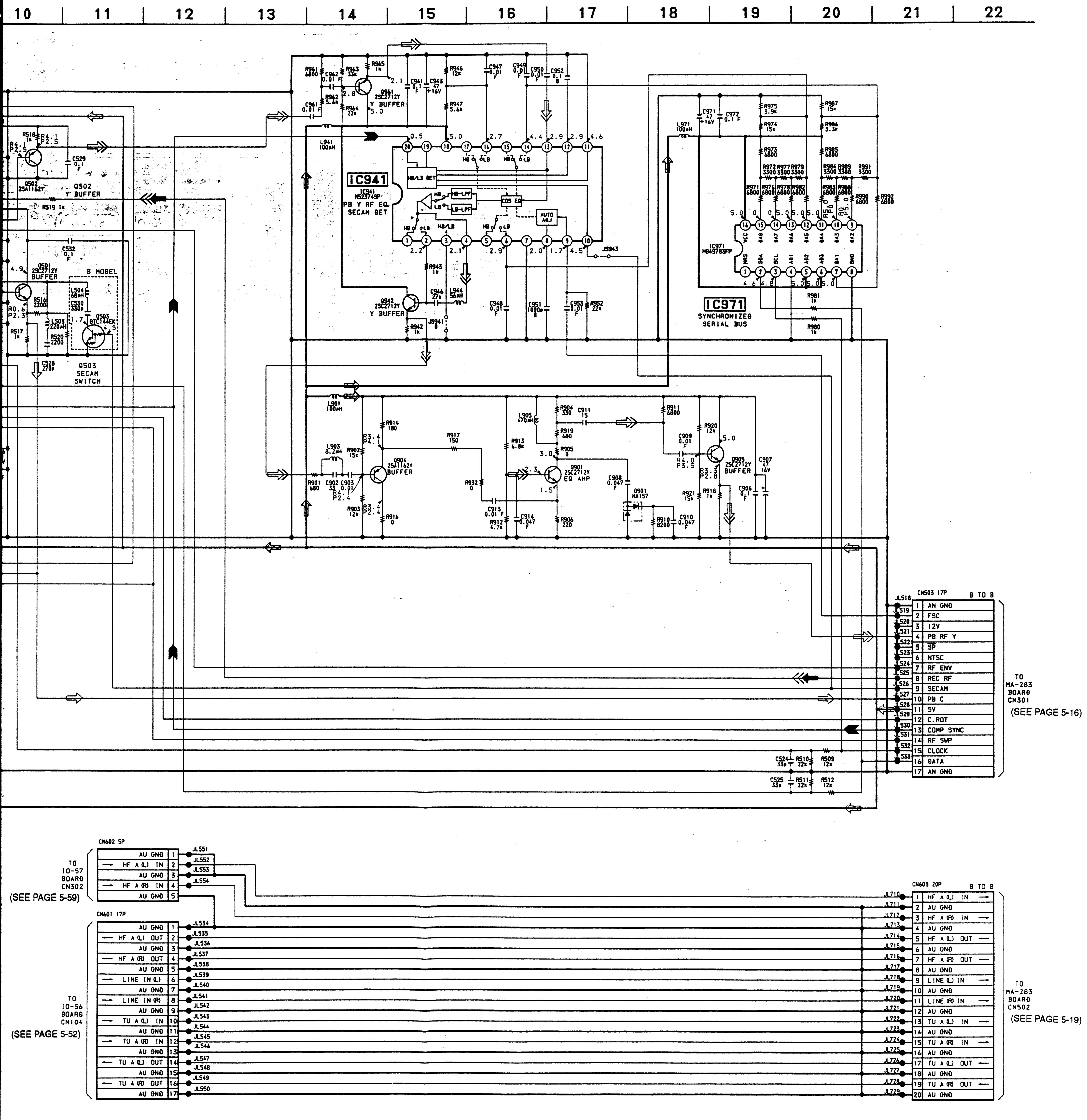
A
B
C
D
E
F
G
H
I
J
K
L
M
RP-213 BOARD
M901 DRUM HEAD
EP CH2
SP CH1
EP CH1
SP CH2
AUDIO CH1
AUDIO CH2
CN501
EP CH2 F
EP CH2 S
SP CH1 F
SP CH1 S
EP CH1 F
EP CH1 S
SP CH2 F
SP CH2 S
GND (SW)
FE
AUDIO CH1
AUDIO REC
AUDIO CH2
IC501 HA11819SNT
IC501
VIDEO REC/PB AMP
SP/EP
ENV DET
AGC CONT
R.MUTE
LOGIC
REC/PB
T.PLAY
Q502 2SA1162Y
Q501 2SC2712Y BUFFER
CN502 4P
CHECK PIN
REC CURR
PB RF
RF SWP
GND
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC760
AUDIO REC/PB AMP
IC760 AN3327K
HF ADJ.LAND
CN701 7P
B TO B
FM REC
AN GND
FM PB
AF REC P
REC
AF SWP
AN GND
TO MA-283 BOARD CN501
(SEE PAGE 5-20)
TO 10-5 BOARD CN30
(SEE PAGE 5-59)
TO 10-5 BOARD CN10
(SEE PAGE 5-52)
04

● Signal path

	REC	REC/PB	PB
Ref. signal	➤		

● Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡⟫	➡
PB	⇨	⇨⟫	⇨⟫	⇨


10
11
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14
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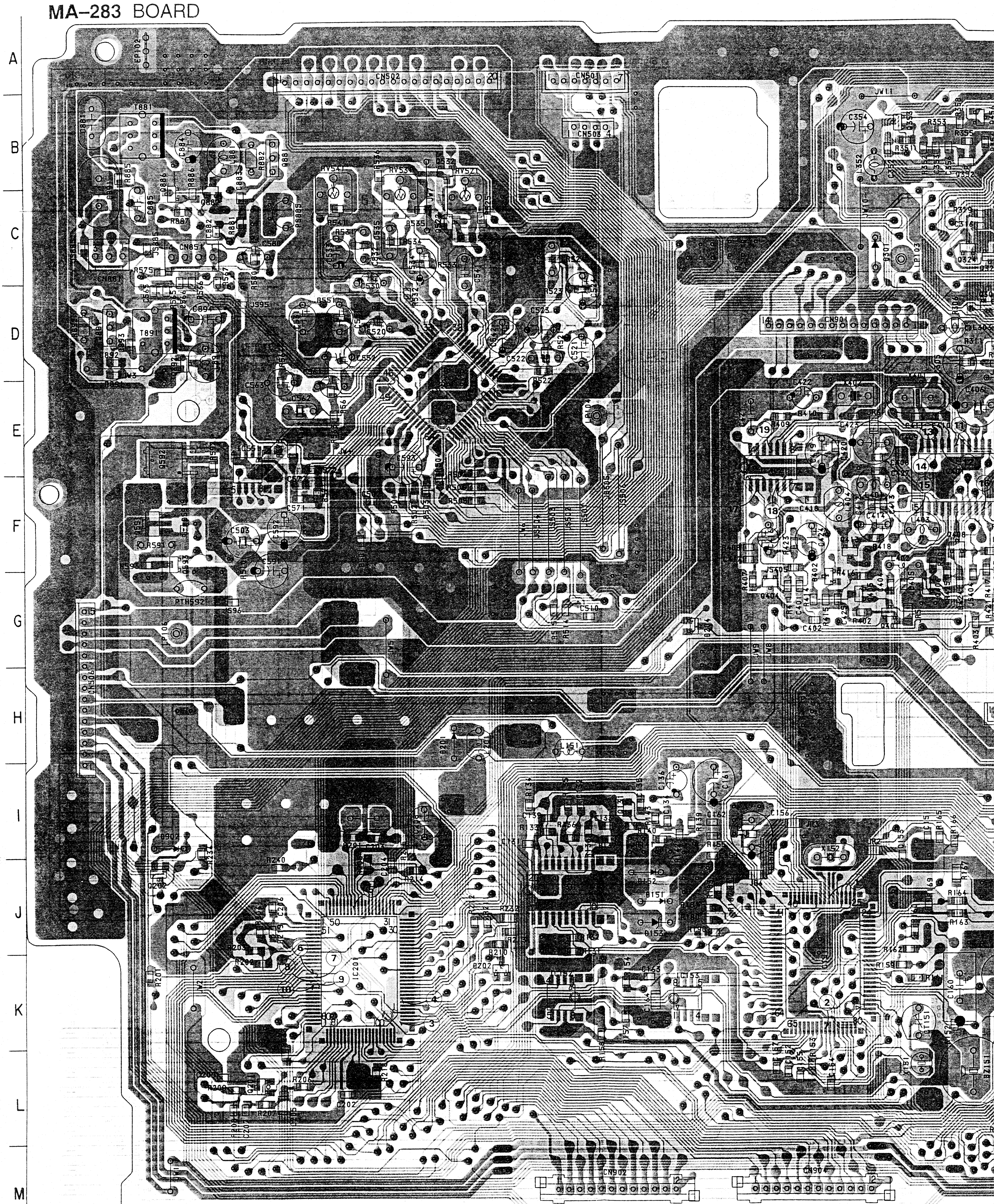
16
17
18
19
20
21
22
IC941
IC941 M52374SP
PB Y RF EQ
SECAM DET
HB/LB DET
HB-LPF
LB-LPF
COS EQ
AUTO ADJ
IC971
SYNCHRONIZED SERIAL BUS
IC971 HD49783FP
Q941 2SC2712Y Y BUFFER
Q942 2SC2712Y Y BUFFER
Q502 2SA1162Y Y BUFFER
Q501 2SC2712Y BUFFER
Q503 DTC144EK SECAM SWITCH
B MODEL
Q904 2SA1162Y BUFFER
Q901 2SC2712Y EQ AMP
Q905 2SC2712Y BUFFER
D901 MA157
CN503 17P B TO B
1 AU GND
2 FSC
3 12V
4 PB RF Y
5 SP
6 NTSC
7 RF ENV
8 REC RF
9 SECAM
10 PB C
11 SV
12 C.ROT
13 COMP SYNC
14 RF SWP
15 CLOCK
16 DATA
17 AN GND
TO MA-283 BOARD CN301
(SEE PAGE 5-16)
CN602 5P
1 AU GND
2 HF A (L) IN
3 AU GND
4 HF A (R) IN
5 AU GND
TO 10-57 BOARD CN302
(SEE PAGE 5-59)
CN601 17P
1 AU GND
2 HF A (L) OUT
3 AU GND
4 HF A (R) OUT
5 AU GND
6 LINE IN (L)
7 AU GND
8 LINE IN (R)
9 AU GND
10 TU A (L) IN
11 AU GND
12 TU A (R) IN
13 AU GND
14 TU A (L) OUT
15 AU GND
16 TU A (R) OUT
17 AU GND
TO 10-56 BOARD CN104
(SEE PAGE 5-52)
CN603 20P B TO B
1 HF A (L) IN
2 AU GND
3 HF A (R) IN
4 AU GND
5 HF A (L) OUT
6 AU GND
7 HF A (R) OUT
8 AU GND
9 LINE (L) IN
10 AU GND
11 LINE (R) IN
12 AU GND
13 TU A (L) IN
14 AU GND
15 TU A (R) IN
16 AU GND
17 TU A (L) OUT
18 AU GND
19 TU A (R) OUT
20 AU GND
TO MA-283 BOARD CN502
(SEE PAGE 5-19)

MA-283 (VIDEO/AUDIO PROCESS, SERVO/SYSTEM CONTROL, TUNER) PRINTED WIRING BOARD

– Ref. No. MA-283 BOARD : 2,000 series –

- There are few cases that the part isn't mounted in this model is printed on this diagram.

MA–283 BOARD


A
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G
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K
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M
04
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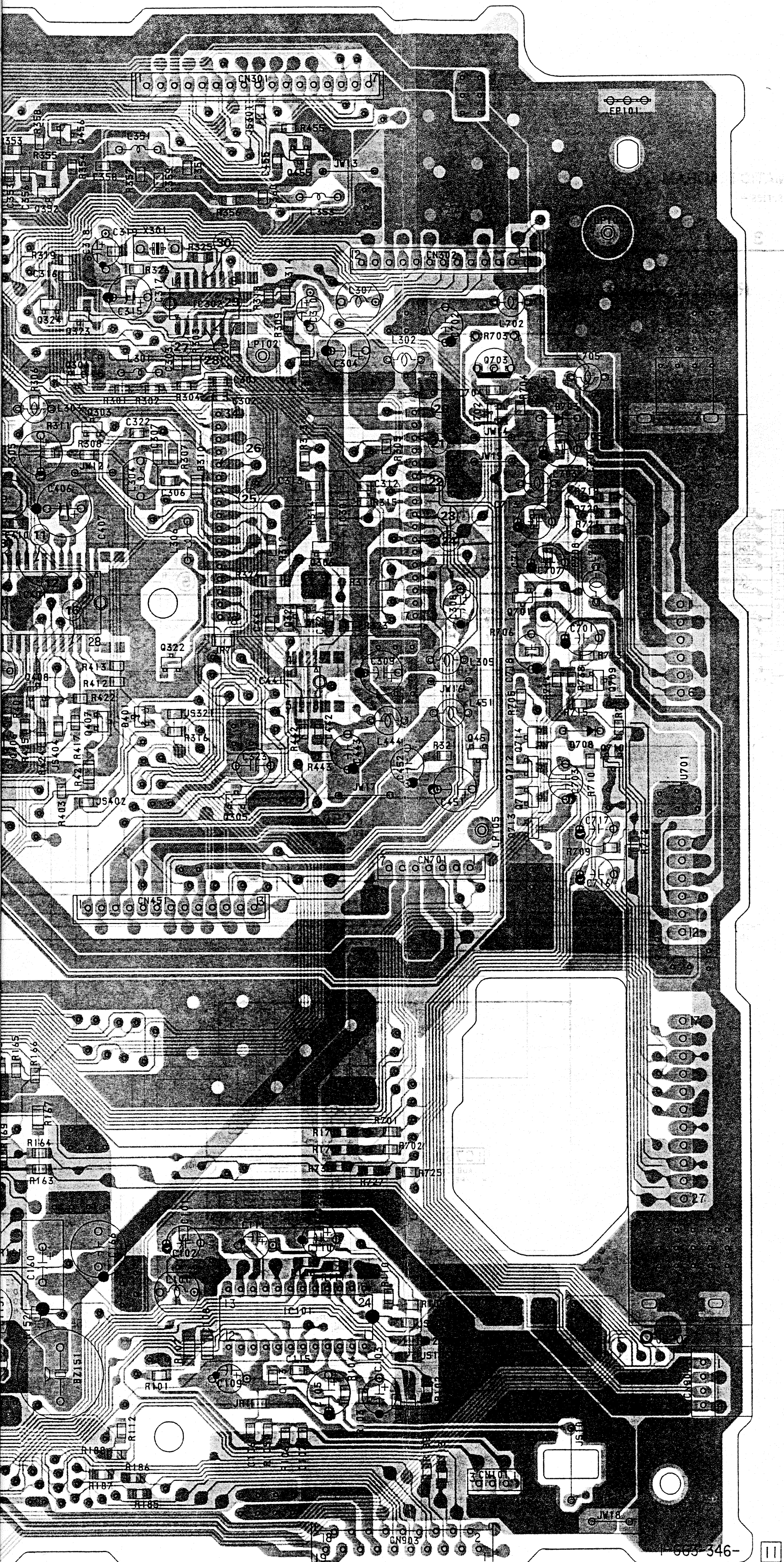
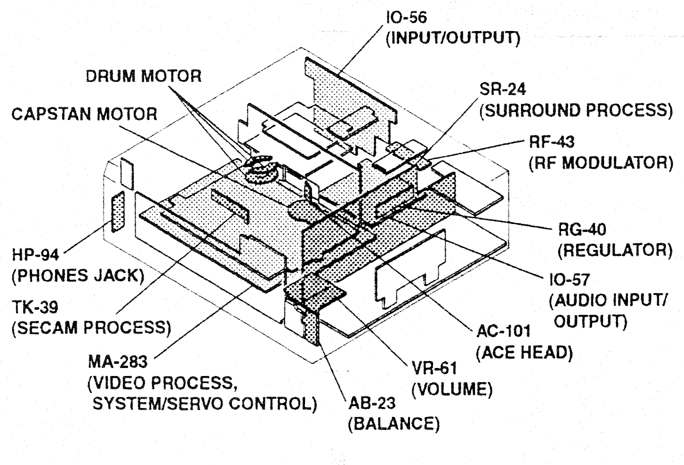
CN502
CN501
CN503
CN901
CN902
CN904
CN504
CN851
IC201
T881
T891
C354
C503
C510
C592
PTH592

VIDEO/AUDIO PROCESS, CONTROL


CN301
CN302
CN451
CN701
CN903
IC101
IC302
EP101
1-663-346-
11
11
12
13
14
15
16

MA-283 BOARD

CN101	M-14
CN301	A-12
CN302	C-14
CN451	H-11
CN501	A-6
CN502	A-4
CN503	B-6
CN506	H-1
CN701	H-14
CN851	C-2
CN881	C-1
CN901	D-9
CN902	M-7
CN903	M-13
CN904	M-9
CN907	L-16
D151	J-7
D152	J-7
D201	H-5
D202	K-5
D204	G-8
D301	C-9
D401	G-11
D402	G-9
D591	F-2
D702	D-14
D703	D-15
D708	G-15
D902	I-2
IC101	K-13
IC131	J-6
IC151	K-9
IC152	K-6
IC153	K-6
IC201	K-4
IC301	E-13
IC302	C-12
IC401	F-10
IC402	E-8
IC441	F-12
IC501	E-5
IC551	E-3
Q131	I-7
Q201	L-3
Q202	J-2
Q303	D-11
Q305	G-12
Q306	E-13
Q322	F-11
Q323	C-11
Q324	C-10
Q352	B-10
Q353	B-10
Q401	G-10
Q405	G-9
Q406	G-10
Q407	G-11
Q413	F-9
Q451	G-14
Q455	B-12
Q456	B-11
Q522	C-5
Q532	B-5
Q591	F-2
Q592	E-2
Q593	F-2
Q701	F-14
Q703	D-14
Q710	G-15
Q711	G-14
Q712	G-14
Q713	G-14
Q714	G-14
Q881	B-3
Q882	C-2
Q886	C-2
Q891	D-1
Q892	D-2


IO-56
(INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24
(SURROUND PROCESS)
RF-43
(RF MODULATOR)
RG-40
(REGULATOR)
HP-94
(PHONES JACK)
IO-57
(AUDIO INPUT/
OUTPUT)
TK-39
(SECAM PROCESS)
AC-101
(ACE HEAD)
MA-283
(VIDEO PROCESS,
SYSTEM/SERVO CONTROL)
VR-61
(VOLUME)
AB-23
(BALANCE)

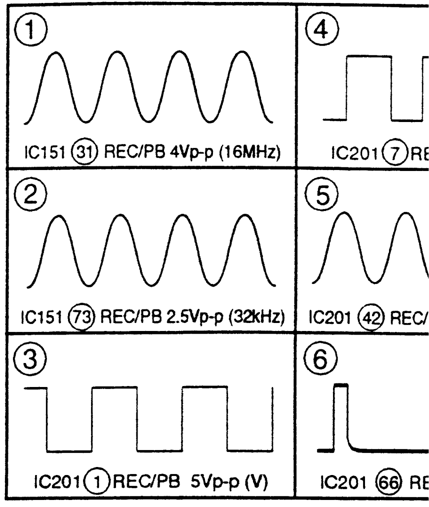
● Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡》	➡
PB			⇨》	

● Signal path

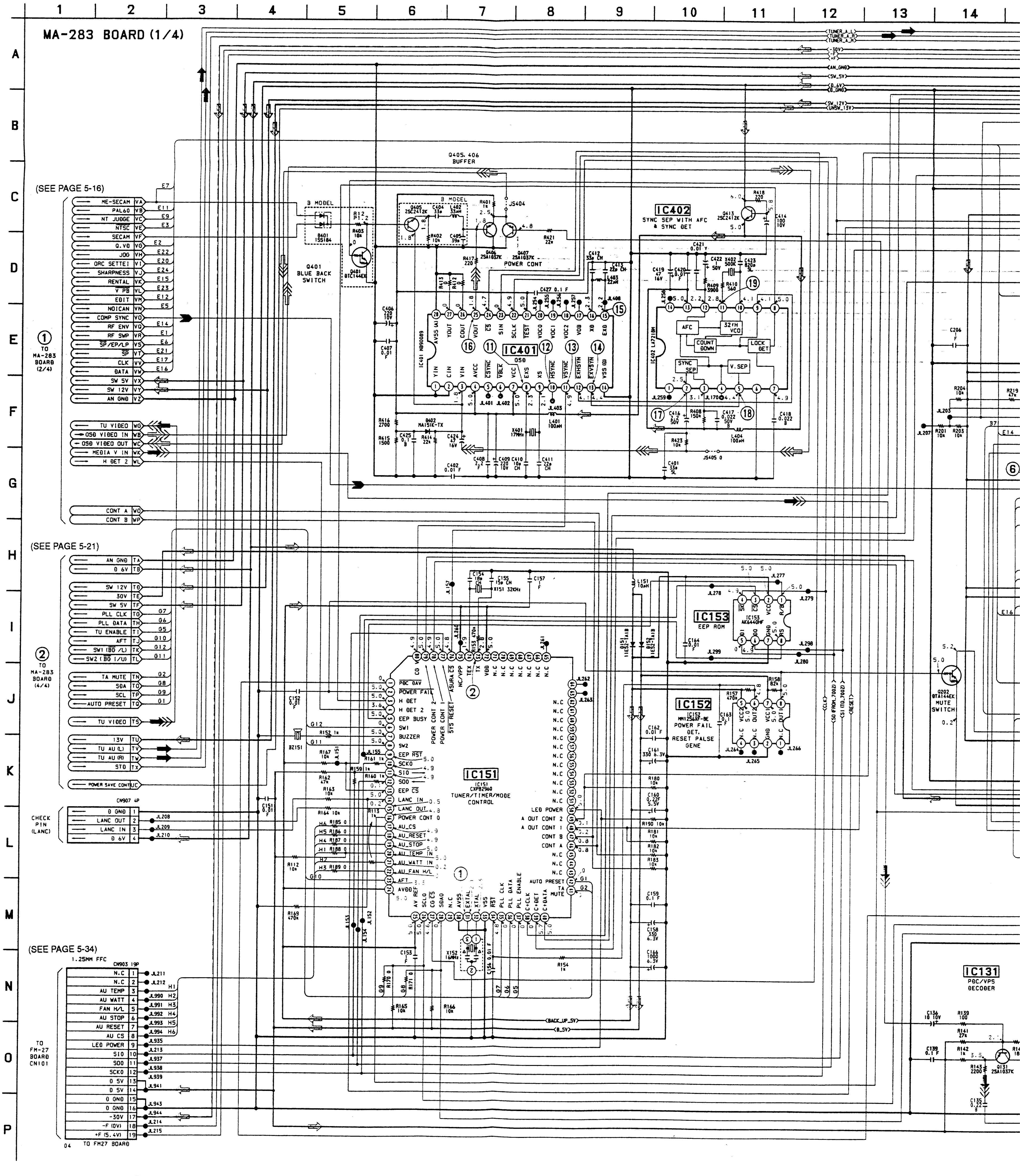
	REC	REC/PB	PB
Drum speed servo		➢	
Drum phase servo		➢》	
Drum servo (speed and phase)		➢》》	
Capstan speed servo		➤	
Capstan phase servo			
Capstan servo (speed and phase)		➤》	
Ref. signal	➤	➤	〉

MA-283 BOARD (1/4)



MA-283 (SERVO/SYSTEM CONTROL, TIMER/TUNER/MODE CONTROL) SCHEMATIC DIAGRAM

– Ref. No. MA-283 BOARD : 2,000 series –



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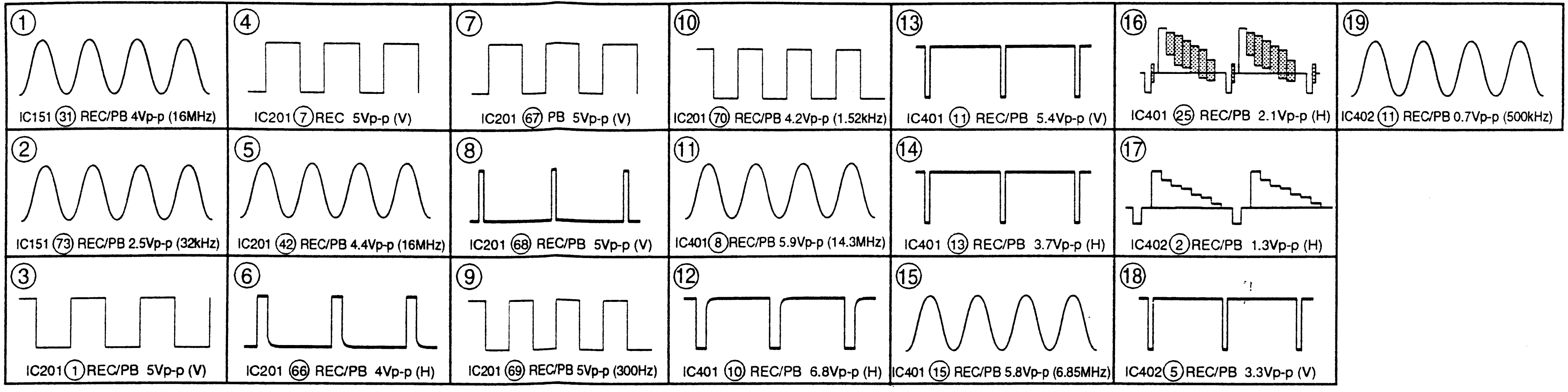
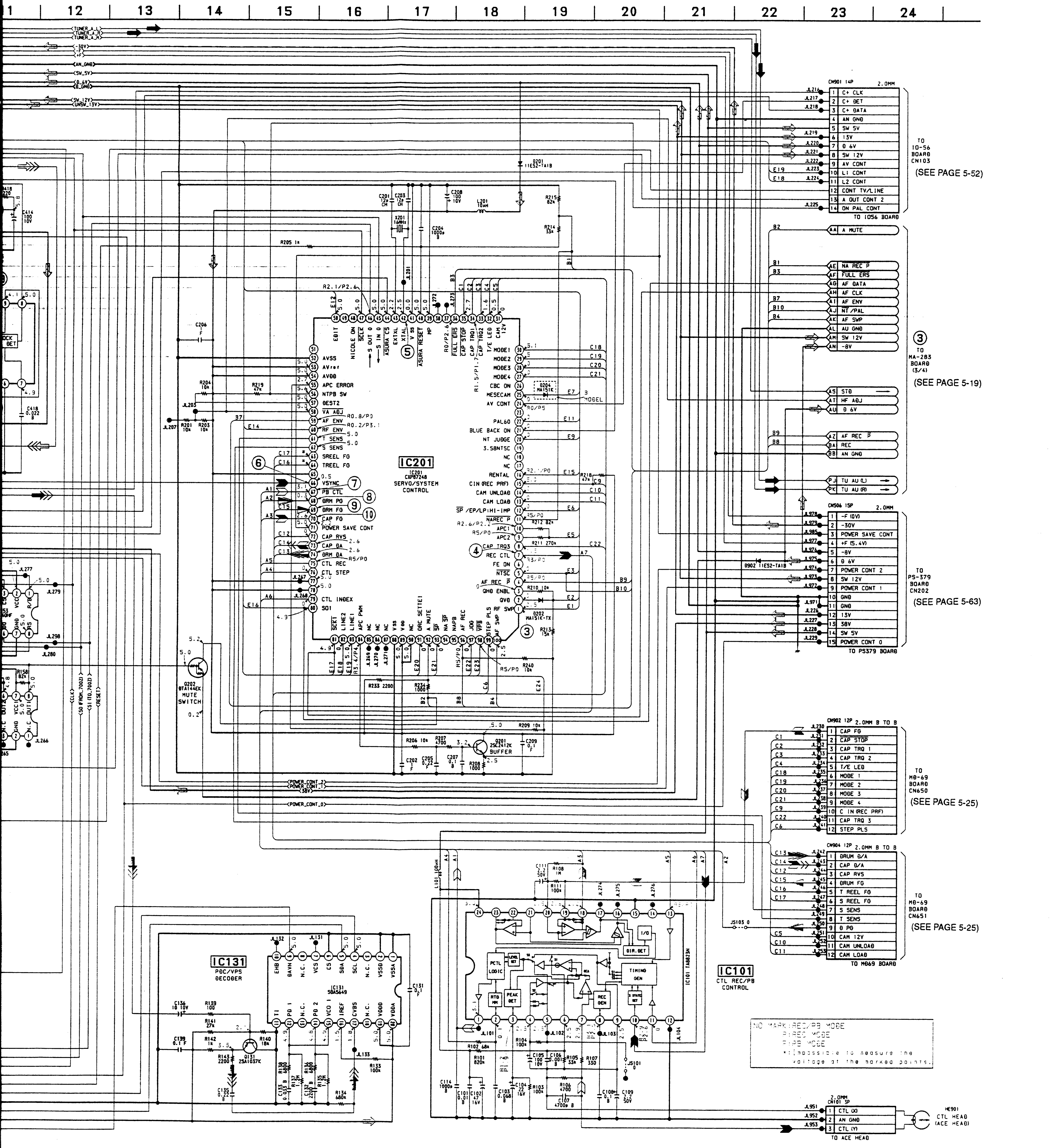
I
J
K
L
M
N
O
P
MA-283 BOARD (1/4)
(SEE PAGE 5-16)
① TO MA-283 BOARD (2/4)
ME-SECAM
PAL60
NT JUDGE
NTSC
SECAM
Q.VD
JOG
ORC SETTEI
SHARPNESS
RENTAL
V PB
EDIT
NOICAN
COMP SYNC
RF ENV
RF SWP
SP/EP/LP
SP
CLK
DATA
SW 5V
SW 12V
AN GND
TU VIDEO
OSD VIDEO IN
OSD VIDEO OUT
MEDIA V IN
H DET 2
CONT A
CONT B
(SEE PAGE 5-21)
② TO MA-283 BOARD (4/4)
AN GND
D 6V
SW 12V
30V
SW 5V
PLL CLK
PLL DATA
TU ENABLE
AFT
SW1 (BG /L)
SW2 (BG I/U)
TA MUTE
SDA
SCL
AUTO PRESET
TU VIDEO
13V
TU AU (L)
TU AU (R)
STD
POWER SAVE CONT
CHECK PIN (LANC)
CN907 4P
D GND
LANC OUT
LANC IN
D 6V
(SEE PAGE 5-34)
1.25MM FFC
CN903 19P
N.C
AU TEMP
AU WATT
FAN H/L
AU STOP
AU RESET
AU CS
LED POWER
SIO
SOO
SCKO
D 5V
D GND
-30V
-F (0V)
+F (5.4V)
TO FM-27 BOARD CN101
TO FM27 BOARD
Q405, 406 BUFFER
B MODEL
Q401 BLUE BACK SWITCH
Q407 2SA1037K POWER CONT
IC401
OSD
IC401 MB90089
IC402
SYNC SEP WITH AFC & SYNC DET
IC402 LA7100M
AFC
32fH VCO
COUNT DOWN
LOCK DET
SYNC SEP
V.SEP
X401 17MHz
IC151
CXP82960
TUNER/TIMER/MODE CONTROL
X151 32kHz
X152 16MHz
IC153
EEP ROM
IC153 AK6440HF
IC152
MM1256XF-BE
POWER FAIL DET, RESET PALSE GENE
<TUNER_A_L>
<TUNER_A_R>
<TUNER_A_M>
<-30V>
<-F>
<+F>
<AN_GND>
<SW_5V>
<D_6V>
<D_GND>
<SW_12V>
<UNSW_13V>
<BACK_UP_5V>
<B_5V>
<CLK>
<SO (FROM 7002)>
<SI (TO 7002)>
<RESET>
Q202 DTA144EK MUTE SWITCH
IC131
PDC/VPS DECODER
Q131 2SA1037K

5-13

5-14

MA-283 BOARD (1/4)





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19
20
21
22
23
24
TUNER_A_L
TUNER_A_R
+30V
AN_GND
SW_5V
0_6V
SW_12V
UNSW_13V
CN901 14P 2.0MM
1 C+ CLK
2 C+ DET
3 C+ DATA
4 AN GND
5 SW 5V
6 13V
7 0 6V
8 SW 12V
9 AV CONT
10 L1 CONT
11 L2 CONT
12 CONT TV/LINE
13 A OUT CONT 2
14 ON PAL CONT
TO 1056 BOARD
TO 10-56 BOARD CN103
(SEE PAGE 5-52)
AA A MUTE
AE NA REC P
AF FULL ERS
AG AF DATA
AH AF CLK
AI AF ENV
AJ NT/PAL
AK AF SWP
AL AU GND
AM SW 12V
AN -8V
AS STD
AT HF ADJ
AU 0 6V
AZ AF REC P
BA REC
BB AN GND
PJ TU AU (L)
PK TU AU (R)
③ TO MA-283 BOARD (3/4)
(SEE PAGE 5-19)
CN506 15P 2.0MM
1 -F (0V)
2 -30V
3 POWER SAVE CONT
4 +F (5.4V)
5 -8V
6 0 6V
7 POWER CONT 2
8 SW 12V
9 POWER CONT 1
10 GND
11 GND
12 13V
13 38V
14 SW 5V
15 POWER CONT 0
TO PS379 BOARD
TO PS-379 BOARD CN202
(SEE PAGE 5-63)
D902 11ES2-TA1B
D201 11ES2-TA1B
IC201
IC201 CXP87248
SERVO/SYSTEM CONTROL
X201 16MHz
L201 10uH
Q204 MA151K
Q202 MA151K-TX
Q201 2SC2412K BUFFER
Q202 DTA144EK MUTE SWITCH
POWER_CONT_2
POWER_CONT_1
38V
POWER_CONT_0
CN902 12P 2.0MM B TO B
1 CAP FG
2 CAP STOP
3 CAP TRQ 1
4 CAP TRQ 2
5 T/E LED
6 MODE 1
7 MODE 2
8 MODE 3
9 MODE 4
10 C IN (REC PRF)
11 CAP TRQ 3
12 STEP PLS
TO MD-69 BOARD CN650
(SEE PAGE 5-25)
CN904 12P 2.0MM B TO B
1 DRUM D/A
2 CAP D/A
3 CAP RVS
4 DRUM FG
5 T REEL FG
6 S REEL FG
7 S SENS
8 T SENS
9 D PG
10 CAM 12V
11 CAM UNLOAD
12 CAM LOAD
TO MD69 BOARD
TO MD-69 BOARD CN651
(SEE PAGE 5-25)
IC131
PDC/VPS DECODER
IC131 SDA5649
Q131 2SA1037K
IC101
CTL REC/PB CONTROL
IC101 TA8823N
PCTL LOGIC
PEAK DET
REC GEN
TIMING GEN
DIR.DET
I/O
JS103
JS101
CN101 3P 2.0MM
1 CTL (X)
2 AN GND
3 CTL (Y)
TO ACE HEAD
HE901 CTL HEAD (ACE HEAD)
NO MARK: REC/PB MODE
: REC MODE
: PB MODE
*: Impossible to measure the voltage at the marked points.

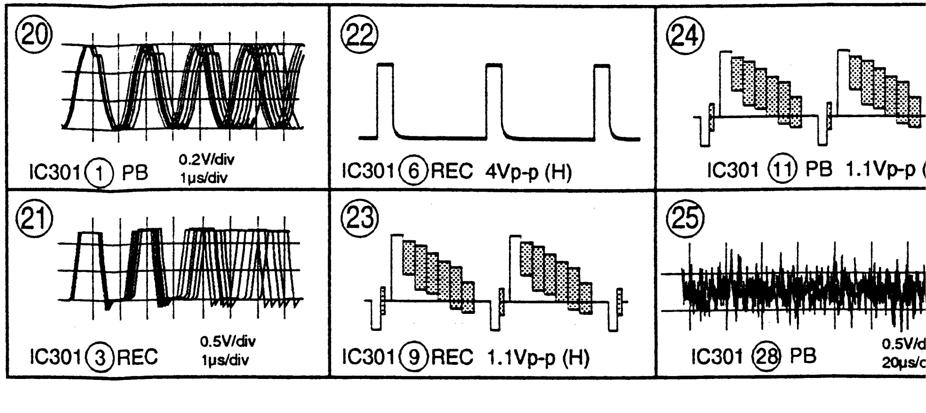
● Signal path

	REC	REC/PB	PB
Ref. signal	➤		

● Signal path

	VIDEO Signal		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	➡»»
PB	⇨	⇨»	⇨»»

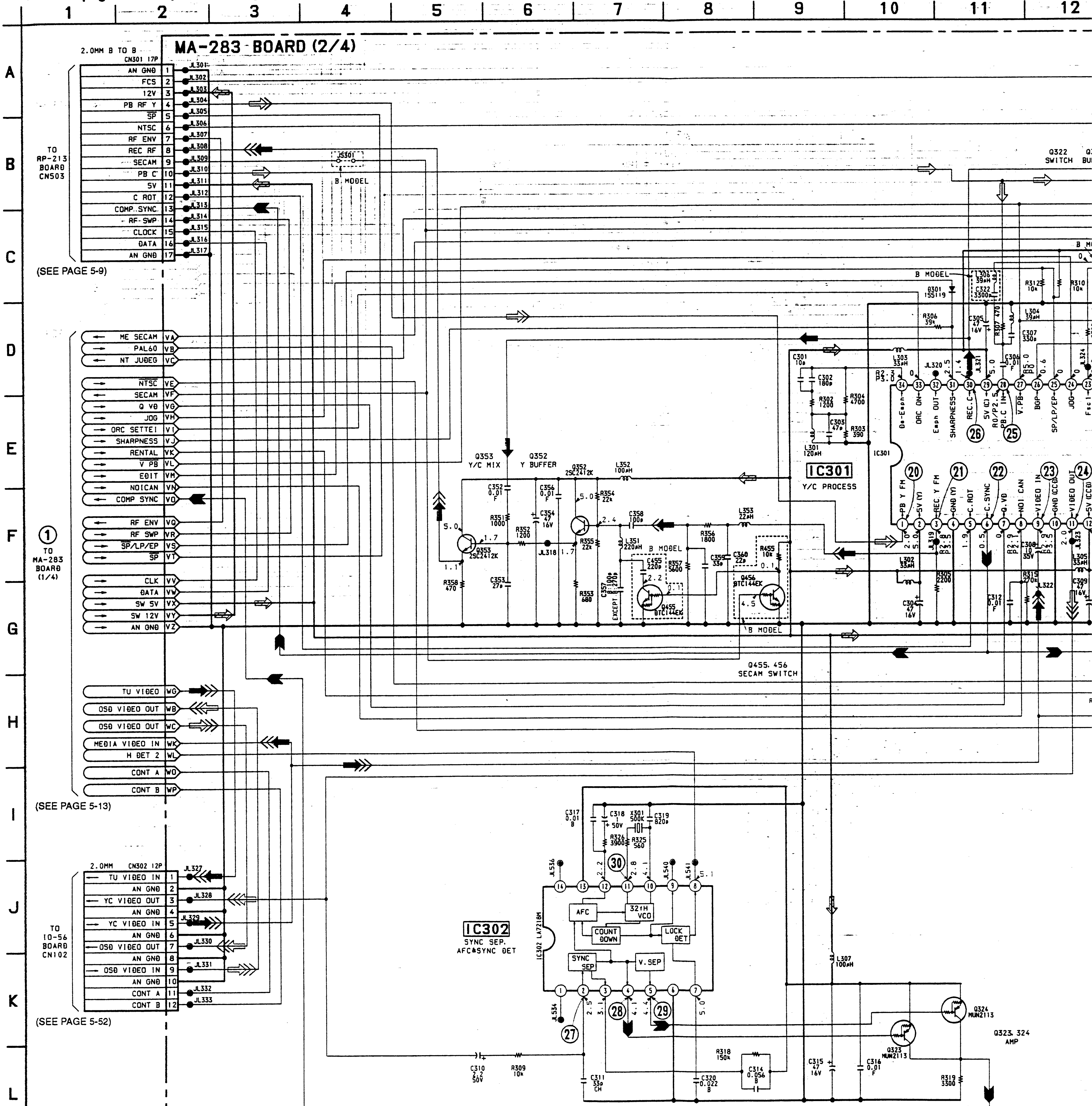
MA-283 BOARD (2/4)



MA-283 (VIDEO PROCESS) TK-39 (SECAM PROCESS) SCHEMATIC DIAGRAMS

– Ref. No. MA-283 BOARD, TK-39 BOARD : 2,000 series –

• **Refer to page 5-10 for printed wiring board.**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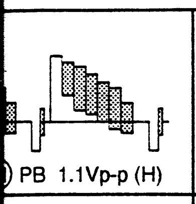
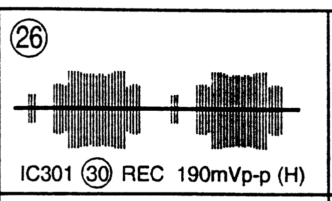
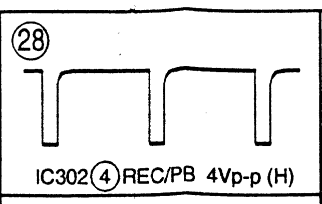
I
J
K
L
MA-283 BOARD (2/4)
2.0MM B TO B
CN301 17P
AN GND 1
FCS 2
12V 3
PB RF Y 4
SP 5
NTSC 6
RF ENV 7
REC RF 8
SECAM 9
PB C 10
5V 11
C ROT 12
COMP. SYNC 13
RF SWP 14
CLOCK 15
DATA 16
AN GND 17
TO RP-213 BOARD CN503
(SEE PAGE 5-9)
B MODEL
ME SECAM VA
PAL60 VB
NT JUDEG VC
NTSC VE
SECAM VF
Q VD VG
JOG VH
ORC SETTEI VI
SHARPNESS VJ
RENTAL VK
V PB VL
EDIT VM
NOICAN VN
COMP SYNC VO
RF ENV VQ
RF SWP VR
SP/LP/EP VS
SP VT
CLK VV
DATA VW
SW 5V VX
SW 12V VY
AN GND VZ
①
TO MA-283 BOARD (1/4)
TU VIDEO WG
OSD VIDEO OUT WB
OSD VIDEO OUT WC
MEDIA VIDEO IN WK
H DET 2 WL
CONT A WO
CONT B WP
(SEE PAGE 5-13)
2.0MM CN302 12P
TU VIDEO IN 1
AN GND 2
YC VIDEO OUT 3
AN GND 4
YC VIDEO IN 5
AN GND 6
OSD VIDEO OUT 7
AN GND 8
OSD VIDEO IN 9
AN GND 10
CONT A 11
CONT B 12
TO 10-56 BOARD CN102
(SEE PAGE 5-52)
Q353 Y/C MIX
Q352 Y BUFFER
Q353 2SC2412K
Q352 2SC2412K
Q455 DTC144EK
Q456 DTC144EK
Q455, 456 SECAM SWITCH
IC301 Y/C PROCESS
IC302 SYNC SEP. AFC&SYNC DET
IC302 LA7218M
AFC
32fH VCO
COUNT DOWN
LOCK DET
SYNC SEP
V. SEP
Q322 SWITCH
Q323, 324 AMP
Q323 MUN2113
Q324 MUN2113
D301 1SS119
X301 500K
De-Emph
ORC ON
Emph OUT
SHARPNESS
REC.C
5V (C)
RO/P2.5
PB.C IN
V.PB
BGP
SP/LP/EP
PB Y FM
5V (Y)
REC Y FM
GND (Y)
C.ROT
C.SYNC
Q.VD
NOI CAN
VIDEO IN
GND (CCD)
VIDEO OUT
5V (CCD)
⑳
㉑
㉒
㉓
㉔
㉕
㉖
㉗
㉘
㉙
㉚
L352 100μH
L353 22μH
L351 220μH
L301 120μH
L302 33μH
L303 33μH
L304 39μH
L307 100μH
C301 10p
C302 180p
C303 47p
R302 1200
R303 390
R304 4700
R306 39k
R318 150k
R319 3300
R309 10k
C310 2.2 50V
C311 33p CH
C314 0.056 B
C315 47 16V
C316 0.01 F
C317 0.01 B
C318 1 50V
C319 820p
C320 0.022 B
R325 560
R326 3900
R351 1000
R352 1200
R353 680
R354 22k
R355 22k
R356 1800
R358 470
C352 0.01 F
C353 27p
C354 47 16V
C356 0.01 F
C358 100p
C359 33p
C360 22p
R455 10k
EXCEPT B

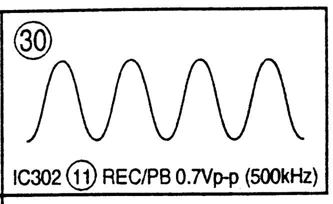

PB 1.1Vp-p (H)


㉖

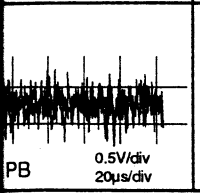
IC301 ㉚ REC 190mVp-p (H)


㉘

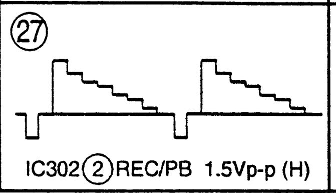
IC302④REC/PB 4Vp-p (H)


㉚

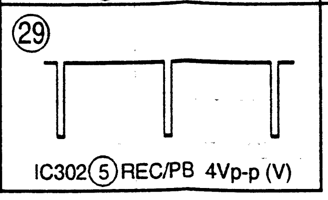
IC302 ⑪ REC/PB 0.7Vp-p (500kHz)


PB

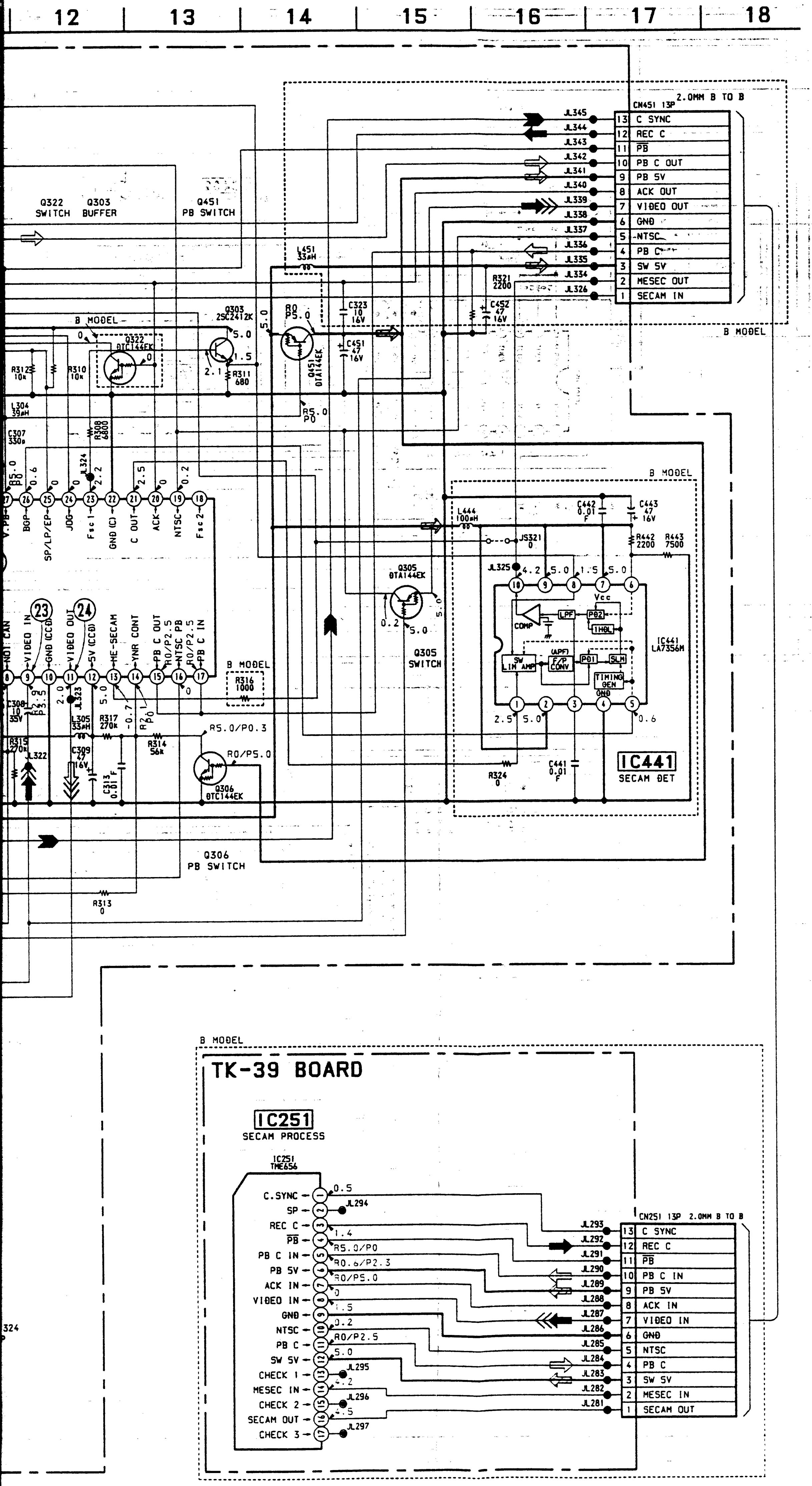
0.5V/div
20μs/div

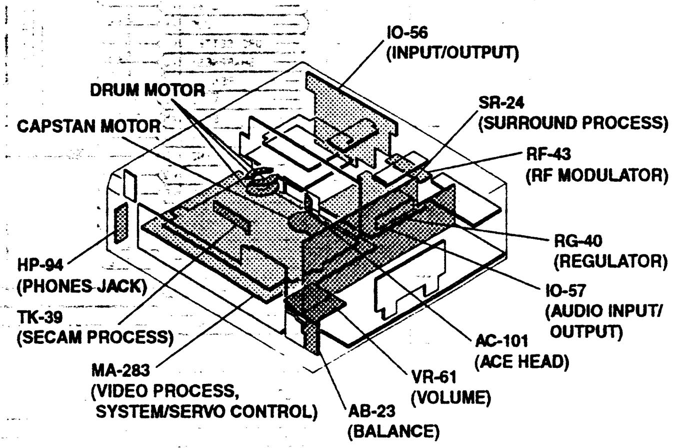

㉗

IC302②REC/PB 1.5Vp-p (H)


㉙

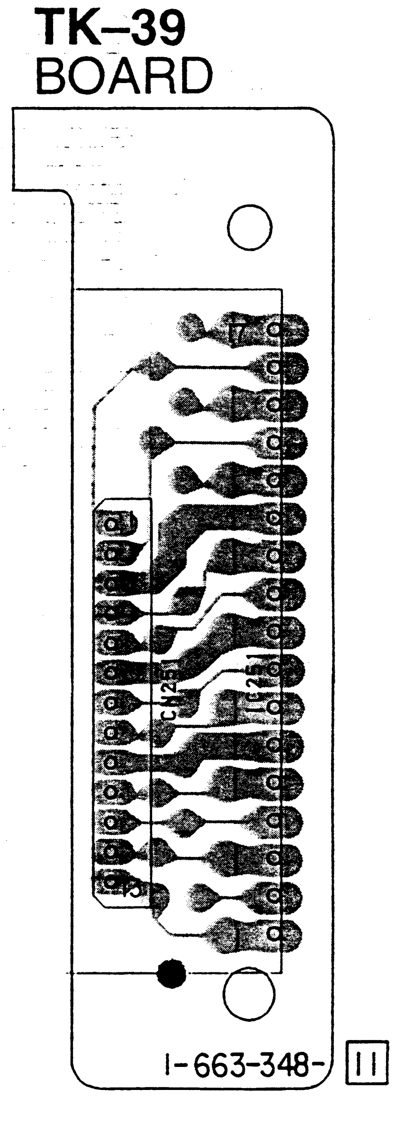
IC302⑤REC/PB 4Vp-p (V)


12
13
14
15
16
17
18
Q322 SWITCH
Q303 BUFFER
Q451 PB SWITCH
CN451 13P 2.0MM B TO B
13 C SYNC
12 REC C
11 PB
10 PB C OUT
9 PB SV
8 ACK OUT
7 VIDEO OUT
6 GND
5 NTSC
4 PB C
3 SW SV
2 MESEC OUT
1 SECAM IN
B MODEL
Q305 SWITCH
Q306 PB SWITCH
IC441 LA7356M
IC441 SECAM DET
TK-39 BOARD
IC251 SECAM PROCESS
IC251 TMF656
C.SYNC
SP
REC C
PB
PB C IN
PB SV
ACK IN
VIDEO IN
GND
NTSC
PB C
SW SV
CHECK 1
MESEC IN
CHECK 2
SECAM OUT
CHECK 3
CN251 13P 2.0MM B TO B
13 C SYNC
12 REC C
11 PB
10 PB C IN
9 PB SV
8 ACK IN
7 VIDEO IN
6 GND
5 NTSC
4 PB C
3 SW SV
2 MESEC IN
1 SECAM OUT


IO-56 (INPUT/OUTPUT)
DRUM MOTOR
SR-24 (SURROUND PROCESS)
CAPSTAN MOTOR
RF-43 (RF MODULATOR)
RG-40 (REGULATOR)
HP-94 (PHONES JACK)
IO-57 (AUDIO INPUT/OUTPUT)
TK-39 (SECAM PROCESS)
AC-101 (ACE HEAD)
MA-283 (VIDEO PROCESS, SYSTEM/SERVO CONTROL)
VR-61 (VOLUME)
AB-23 (BALANCE)

TK-39 (SECAM PROCESS) PRINTED WIRING BOARD

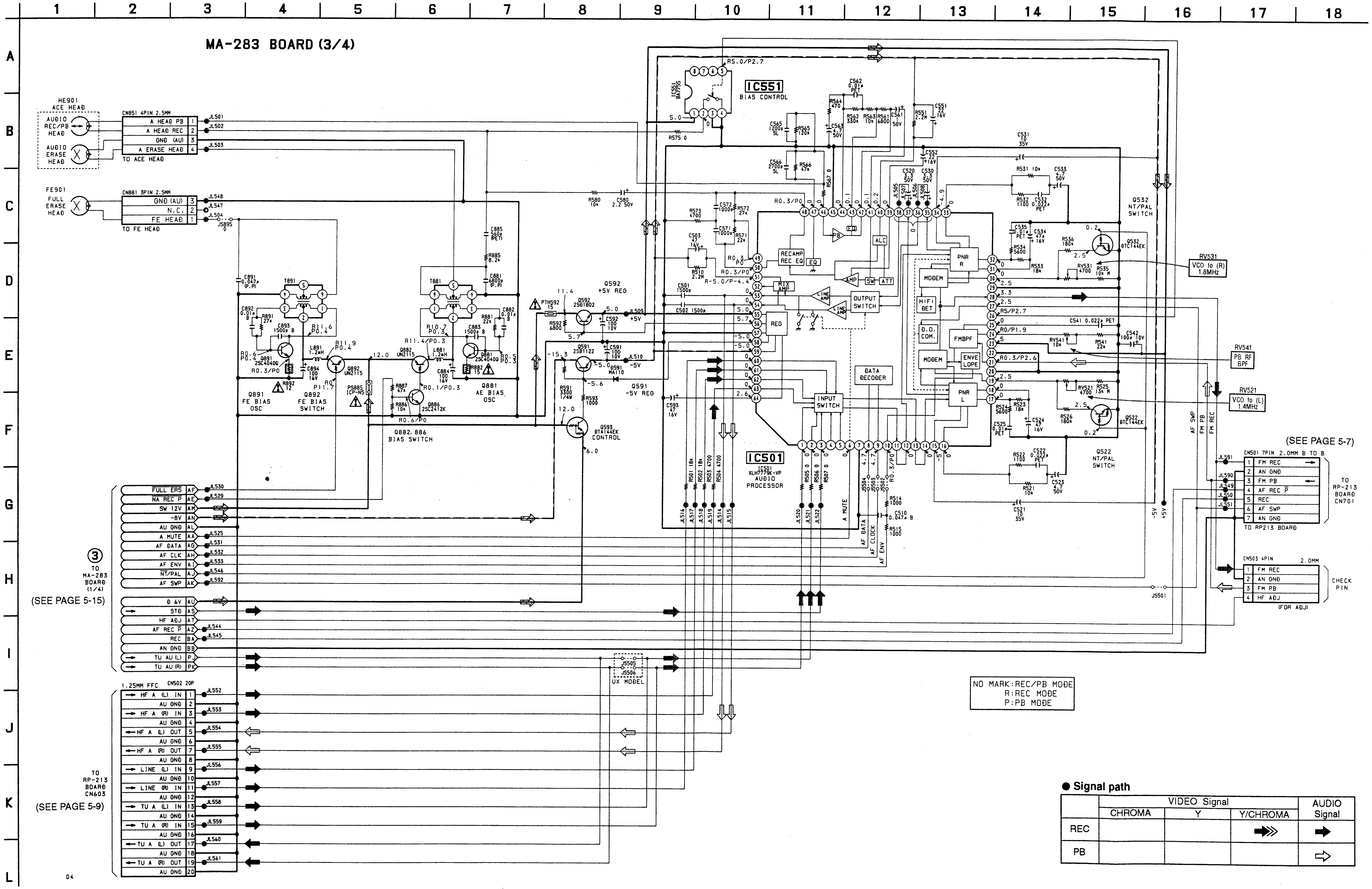
– Ref. No. TK-39 BOARD : 2,000 series –


TK–39
BOARD
IC251
1-663-348- 11

MA-283 (AUDIO PROCESS, TUNER) SCHEMATIC DIAGRAM

– Ref. No. MA-283 BOARD : 2,000 series –

- **Refer to page 5-10 for printed wiring board.**

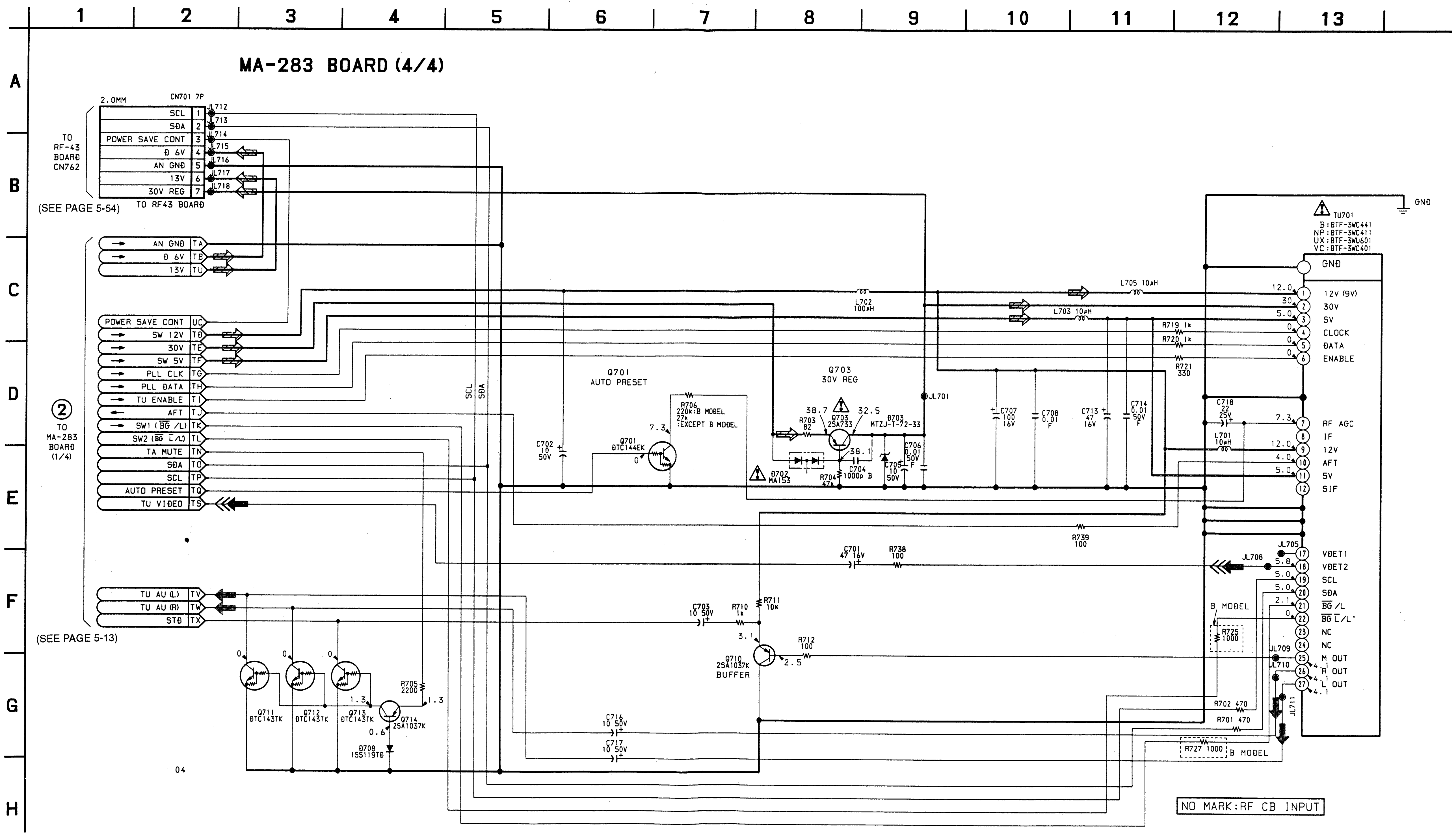


MA-283 BOARD (3/4)
HE901 ACE HEAD
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
CN851 4PIN 2.5MM
A HEAD PB
A HEAD REC
GND (AU)
A ERASE HEAD
TO ACE HEAD
FE901 FULL ERASE HEAD
CN881 3PIN 2.5MM
GND (AU)
N.C.
FE HEAD
TO FE HEAD
Q891 FE BIAS OSC
Q892 FE BIAS SWITCH
Q881 AE BIAS OSC
Q882, 886 BIAS SWITCH
Q592 +5V REG
Q591 -5V REG
Q593 CONTROL
IC551 BIAS CONTROL
IC501 XLH7779K-VP AUDIO PROCESSOR
RECAMP REC EQ
MIX AMP
LINE AMP
OUTPUT SWITCH
REG
INPUT SWITCH
DATA DECODER
ALC
SW
ATT
PNR R
PNR L
MODEM
HIFI DET
D.O. COM.
FMBPF
ENVE LOPE
Q532 NT/PAL SWITCH
Q522 NT/PAL SWITCH
RV531 VCO fo (R) 1.8MHz
RV541 PB RF BPF
RV521 VCO fo (L) 1.4MHz
(SEE PAGE 5-7)
CN501 7PIN 2.0MM B TO B
FM REC
AN GND
FM PB
AF REC P
REC
AF SWP
AN GND
TO RP213 BOARD
TO RP-213 BOARD CN701
CN503 4PIN 2.0MM
FM REC
AN GND
FM PB
HF ADJ
(FOR ADJ)
CHECK PIN
③ TO MA-283 BOARD (1/4)
(SEE PAGE 5-15)
FULL ERS
NA REC P
SW 12V
-8V
AU GND
A MUTE
AF DATA
AF CLK
AF ENV
NT/PAL
AF SWP
D 6V
STD
HF ADJ
AF REC P
REC
AN GND
TU AU (L)
TU AU (R)
UX MODEL
1.25MM FFC CN502 20P
HF A (L) IN
AU GND
HF A (R) IN
HF A (L) OUT
HF A (R) OUT
LINE (L) IN
LINE (R) IN
TU A (L) IN
TU A (R) IN
TU A (L) OUT
TU A (R) OUT
TO RP-213 BOARD CN603
(SEE PAGE 5-9)

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE

- **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			⇛	➡
PB				⇨


1
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11
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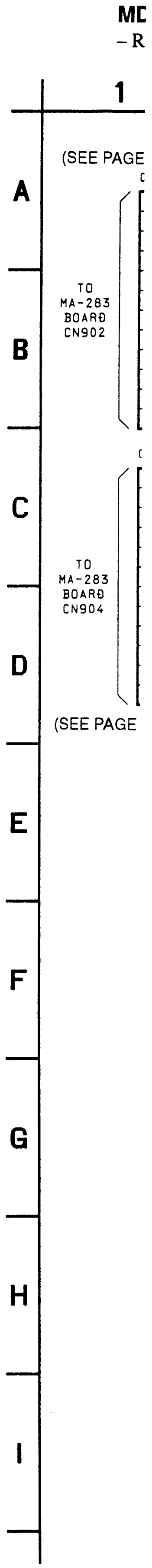
13
A
B
C
D
E
F
G
H
MA-283 BOARD (4/4)
2.0MM
CN701 7P
SCL 1
SDA 2
POWER SAVE CONT 3
D 6V 4
AN GND 5
13V 6
30V REG 7
JL712
JL713
JL714
JL715
JL716
JL717
JL718
TO RF-43 BOARD CN762
(SEE PAGE 5-54)
TO RF43 BOARD
AN GND TA
D 6V TB
13V TU
POWER SAVE CONT UC
SW 12V TD
30V TE
SW 5V TF
PLL CLK TG
PLL DATA TH
TU ENABLE TI
AFT TJ
SW1 (BG /L) TK
SW2 (BG L/L) TL
TA MUTE TN
SDA TO
SCL TP
AUTO PRESET TQ
TU VIDEO TS
② TO MA-283 BOARD (1/4)
TU AU (L) TV
TU AU (R) TW
STD TX
(SEE PAGE 5-13)
SCL
SDA
C702 10 50V
Q701 AUTO PRESET
R706 220k:B MODEL 27k :EXCEPT B MODEL
7.3
Q701 DTC144EK
0
Q703 30V REG
38.7
32.5
R703 82
Q703 2SA733
D703 MTZJ-T-72-33
38.1
C706 0.01 50V F
C705 10 50V
C704 1000p B
R704 47k
D702 MA153
JL701
L702 100μH
L703 10μH
L705 10μH
C707 100 16V
C708 0.01 F
C713 47 16V
C714 0.01 50V F
R719 1k
R720 1k
R721 330
C718 22 25V
L701 10μH
R739 100
C701 47 16V
R738 100
JL708
JL705
C703 10 50V
R710 1k
R711 10k
3.1
R712 100
Q710 2SA1037K BUFFER
2.5
Q711 DTC143TK
Q712 DTC143TK
Q713 DTC143TK
Q714 2SA1037K
R705 2200
1.3
1.3
0.6
D708 1SS119TD
0
0
0
C716 10 50V
C717 10 50V
04
TU701 B:BTF-3WC441 NP:BTF-3WC411 UX:BTF-3WU601 VC:BTF-3WC401
GND
12.0 ① 12V (9V)
30 ② 30V
5.0 ③ 5V
0 ④ CLOCK
0 ⑤ DATA
0 ⑥ ENABLE
7.3 ⑦ RF AGC
⑧ IF
12.0 ⑨ 12V
4.0 ⑩ AFT
5.0 ⑪ 5V
⑫ SIF
⑰ VDET1
5.8 ⑱ VDET2
5.0 ⑲ SCL
5.0 ⑳ SDA
2.1 ㉑ BG/L
0 ㉒ BG L/L'
㉓ NC
㉔ NC
JL709 ㉕ M OUT 4.1
JL710 ㉖ R OUT 4.1
㉗ L OUT 4.1
JL711
B MODEL
R725 1000
R702 470
R701 470
R727 1000 B MODEL
NO MARK:RF CB INPUT

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

AUDIO Signal

➡

⇨

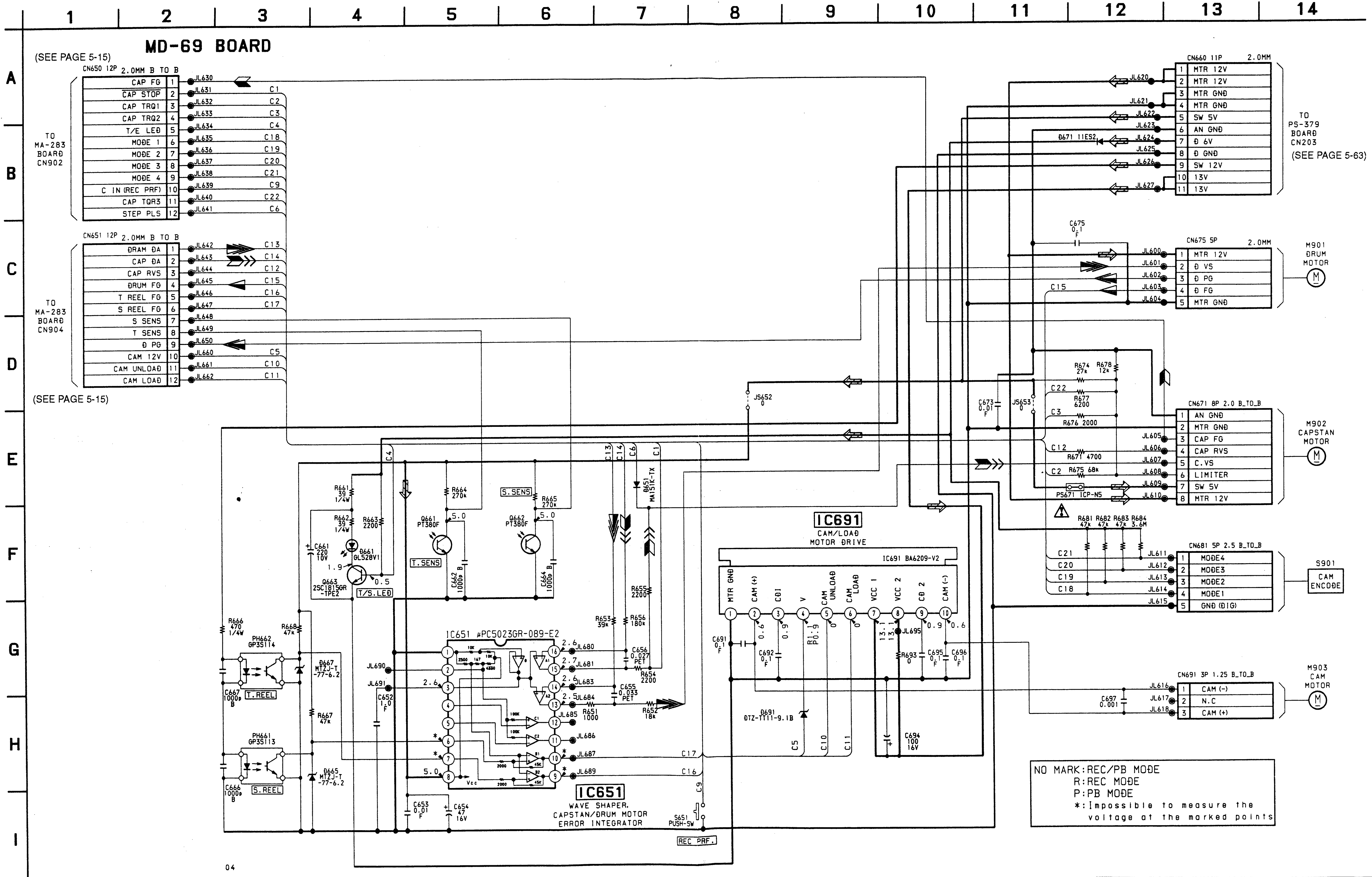

MD
-R
1
A
B
C
D
E
F
G
H
I
(SEE PAGE
TO
MA-283
BOARD
CN902
TO
MA-283
BOARD
CN904
(SEE PAGE

● **Signal path**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	
Capstan speed servo		➡	
Capstan phase servo			
Capstan servo (speed and phase)		➡»	
Ref. signal			

MD-69 (MD DRIVE) SCHEMATIC DIAGRAM

– Ref. No. MD-69 BOARD : 2,000 series –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14
A
B
C
D
E
F
G
H
I
MD-69 BOARD
(SEE PAGE 5-15)
CN650 12P 2.0MM B TO B
CAP FG 1 JL630
CAP STOP 2 JL631 C1
CAP TRQ1 3 JL632 C2
CAP TRQ2 4 JL633 C3
T/E LED 5 JL634 C4
MODE 1 6 JL635 C18
MODE 2 7 JL636 C19
MODE 3 8 JL637 C20
MODE 4 9 JL638 C21
C IN (REC PRF) 10 JL639 C9
CAP TQR3 11 JL640 C22
STEP PLS 12 JL641 C6
TO MA-283 BOARD CN902
CN651 12P 2.0MM B TO B
DRAM DA 1 JL642 C13
CAP DA 2 JL643 C14
CAP RVS 3 JL644 C12
DRUM FG 4 JL645 C15
T REEL FG 5 JL646 C16
S REEL FG 6 JL647 C17
S SENS 7 JL648
T SENS 8 JL649
D PG 9 JL650
CAM 12V 10 JL660 C5
CAM UNLOAD 11 JL661 C10
CAM LOAD 12 JL662 C11
TO MA-283 BOARD CN904
(SEE PAGE 5-15)
CN660 11P 2.0MM
1 MTR 12V
2 MTR 12V
3 MTR GND
4 MTR GND
5 SW 5V
6 AN GND
7 D 6V
8 D GND
9 SW 12V
10 13V
11 13V
JL620
JL621
JL622
JL623
JL624
JL625
JL626
JL627
D671 11ES2
TO PS-379 BOARD CN203
(SEE PAGE 5-63)
C675 0.1 F
CN675 5P 2.0MM
1 MTR 12V
2 D VS
3 D PG
4 D FG
5 MTR GND
JL600
JL601
JL602
JL603
JL604
C15
M901 DRUM MOTOR
M
R674 27k
R678 12k
C22
R677 6200
C3
R676 2000
JS653 0
C673 0.01 F
JS652 0
C12
R671 4700
C2 R675 68k
PS671 ICP-N5
CN671 8P 2.0 B_TO_B
1 AN GND
2 MTR GND
3 CAP FG
4 CAP RVS
5 C.VS
6 LIMITER
7 SW 5V
8 MTR 12V
JL605
JL606
JL607
JL608
JL609
JL610
M902 CAPSTAN MOTOR
M
⚠
R681 47k
R682 47k
R683 47k
R684 3.6M
C21
C20
C19
C18
CN681 5P 2.5 B_TO_B
1 MODE4
2 MODE3
3 MODE2
4 MODE1
5 GND (DIG)
JL611
JL612
JL613
JL614
JL615
S901 CAM ENCODE
CN691 3P 1.25 B_TO_B
1 CAM (–)
2 N.C
3 CAM (+)
JL616
JL617
JL618
C697 0.001
M903 CAM MOTOR
M
IC691
CAM/LOAD MOTOR DRIVE
IC691 BA6209-V2
MTR GND
CAM (+)
CDI
V
CAM UNLOAD
CAM LOAD
VCC 1
VCC 2
CD 2
CAM (–)
0.6
0.9
R1.1
P0.9
0
0
13.1
13.1
0.9
0.6
JL695
C691 0.1 F
C692 0.1 F
R693 0
C695 0.1 F
C696 0.1 F
D691 DTZ-TT11-9.1B
C5
C10
C11
C694 100 16V
C4
C13
C14
C6
C1
R661 39 1/4W
R662 39 1/4W
R663 2200
C661 220 10V
D661 GL528V1
1.9
0.5
Q663 2SC1815GR -TPE2
T/S.LED
R664 270k
Q661 PT380F
5.0
T.SENS
C662 1000p B
S.SENS
R665 270k
Q662 PT380F
5.0
C664 1000p B
D651 MA151K-TX
R655 2200
R653 39k
R656 180k
R666 470 1/4W
R668 47k
PH662 GP3S114
T.REEL
C667 1000p B
D667 MTZJ-T -77-6.2
R667 47k
PH661 GP3S113
S.REEL
C666 1000p B
D665 MTZJ-T -77-6.2
JL690
JL691
C652 1.0 F
IC651 µPC5023GR-089-E2
2.6
2.6
2.7
2.6
2.5
5.0
*
*
*
*
JL680
JL681
JL683
JL684
JL685
JL686
JL687
JL689
C656 0.027 PET
R654 2200
C655 0.033 PET
R651 1000
R652 18k
Vcc
C653 0.01 F
C654 47 16V
IC651
WAVE SHAPER, CAPSTAN/DRUM MOTOR ERROR INTEGRATOR
C17
C16
C9
S651 PUSH-SW
REC PRF.
04

NO MARK : REC/PB MODE
R : REC MODE
P : PB MODE
* : Impossible to measure the voltage at the marked points

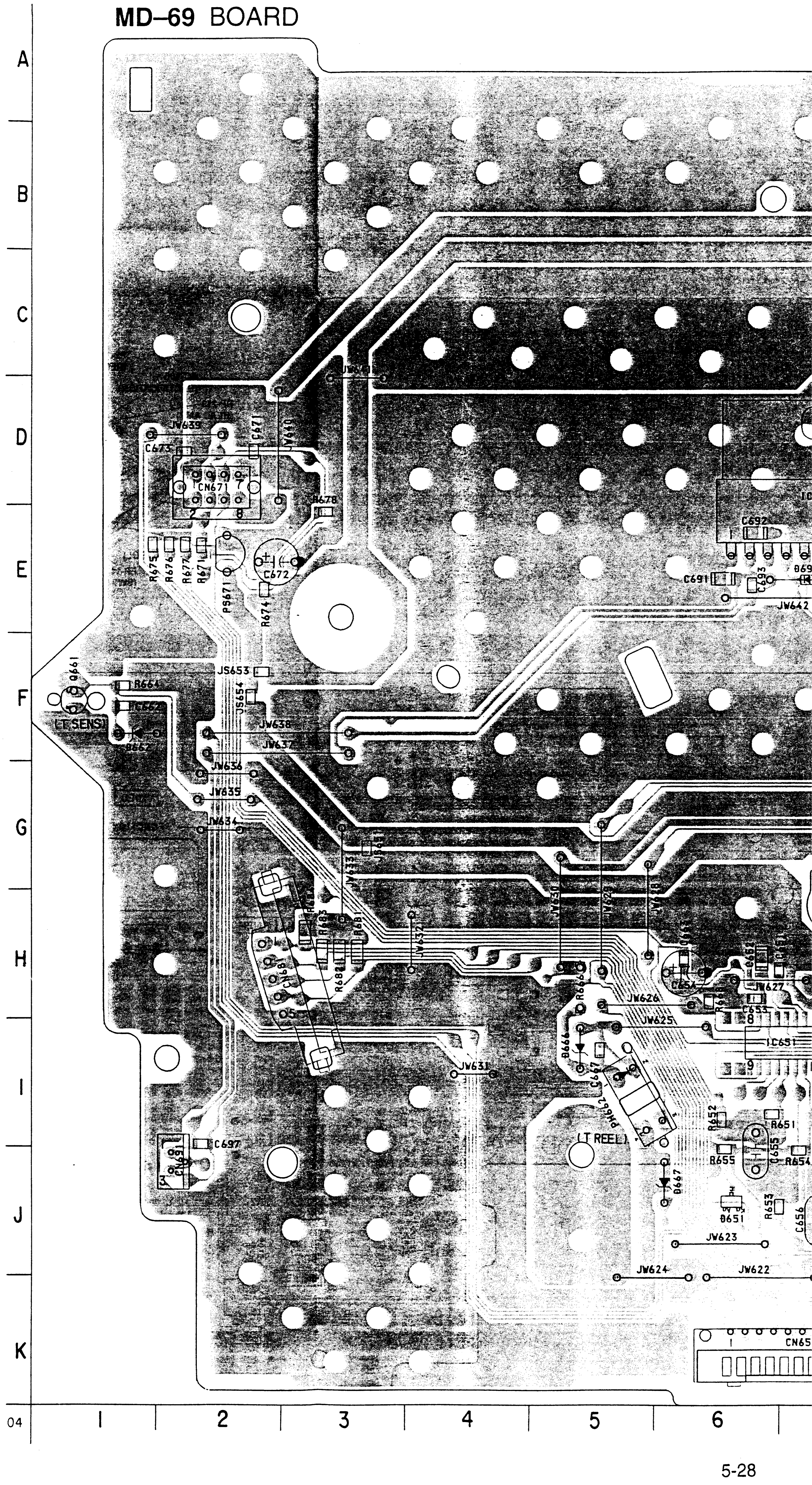
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

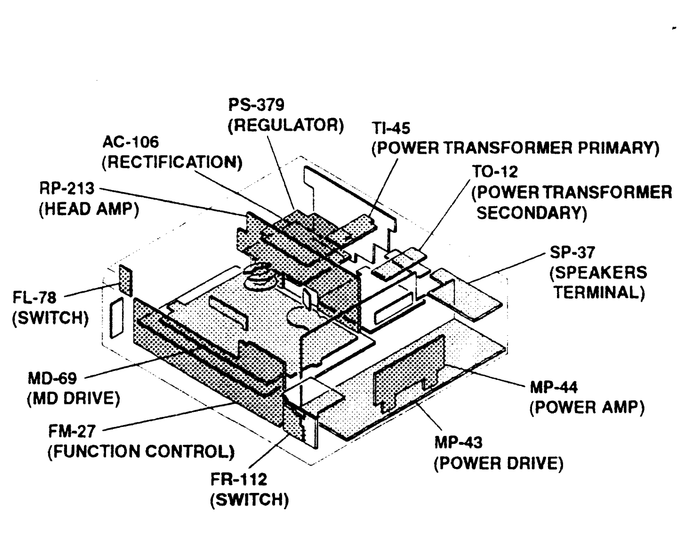
• Ther
this n

MD-69 (MD DRIVE) PRINTED WIRING BOARD

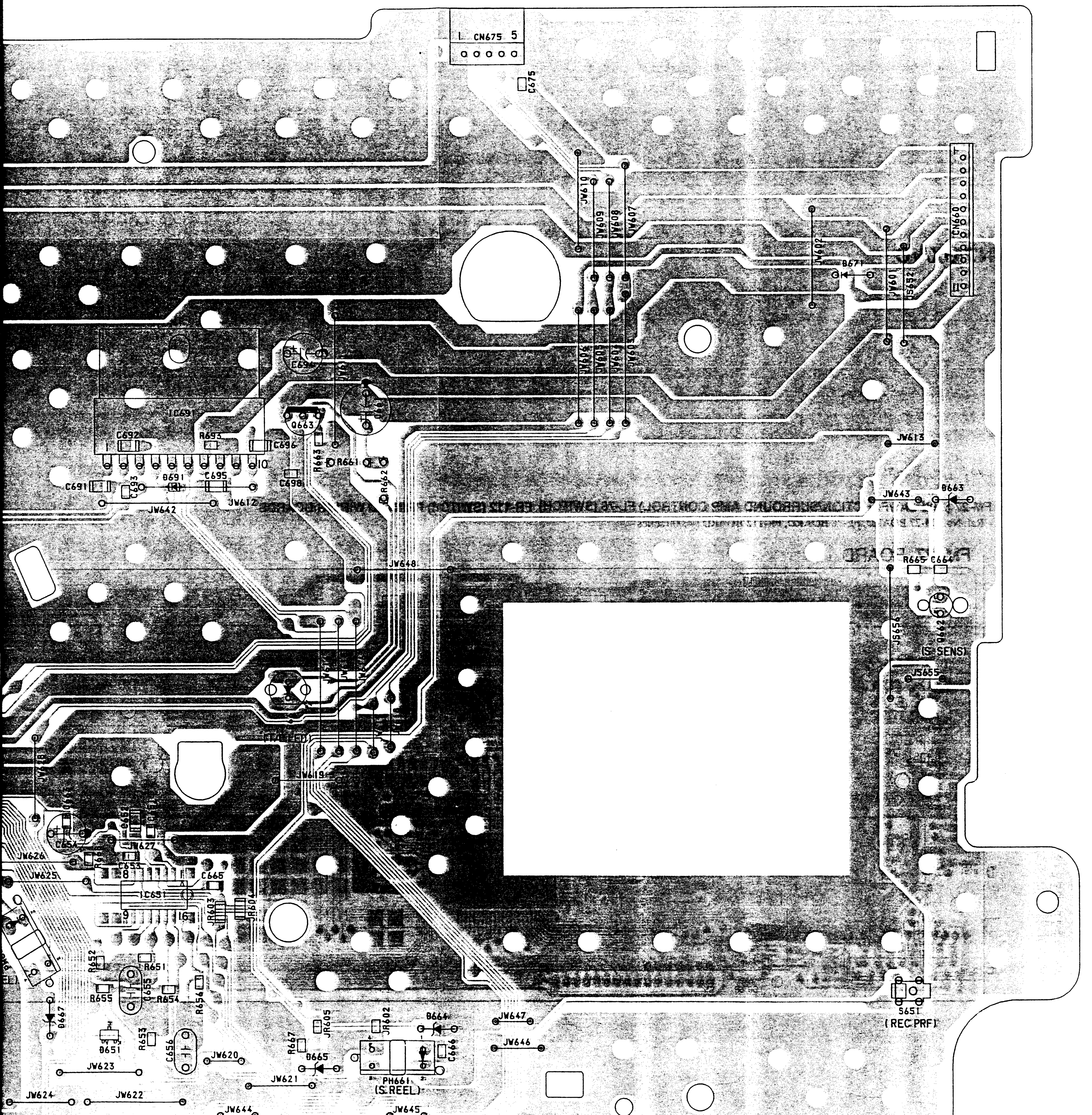
– Ref. No. MD-69 BOARD : 2,000 series –

MD-69 BOARD	
CN650	K-7
CN651	K-9
CN660	C-14
CN671	D-2
CN675	A-10
CN681	H-3
CN691	J-2
D651	J-6
D661	G-8
D665	J-8
D667	J-6
D671	C-13
D691	E-7
IC651	I-6
IC691	D-7
Q661	F-1
Q662	F-13
Q663	D-8


MD–69 BOARD
A
B
C
D
E
F
G
H
I
J
K
04
1
2
3
4
5
6
JW639
C673
CN671
C671
R678
R675
R676
R677
R671
PS671
C672
R674
JS653
JS654
Q661
R664
R662
LT SENS
JW638
JW637
JW636
JW635
JW634
CN681
R681
R682
R683
JW633
JW632
JW631
JW630
JW629
JW626
JW625
R666
C667
PH662
LT REEL
IC651
C654
C653
JW627
C692
C691
C693
JW642
R652
R651
C655
R655
R654
D667
R653
D651
C656
JW623
JW624
JW622
CN691
C697
CN650


PS-379
(REGULATOR)
TI-45
(POWER TRANSFORMER PRIMARY)
AC-106
(RECTIFICATION)
RP-213
(HEAD AMP)
TO-12
(POWER TRANSFORMER
SECONDARY)
SP-37
(SPEAKERS
TERMINAL)
FL-78
(SWITCH)
MD-69
(MD DRIVE)
MP-44
(POWER AMP)
FM-27
(FUNCTION CONTROL)
MP-43
(POWER DRIVE)
FR-112
(SWITCH)

- There are few cases that the part isn't mounted in this model is printed on this diagram.


CN675
1
5
C675
JW610
JW609
JW608
JW607
JW606
JW605
JW604
JW603
JW602
D671
JW601
JS652
CN660
IC691
C692
R693
C696
C694
Q663
R663
R661
R662
C698
C691
C693
D691
C695
JW612
JW642
JW613
JW643
D663
JW648
R665
C664
JS656
Q662
(S SENS)
JS655
JW619
JW626
C654
JW627
JW625
C653
C665
IC651
8
9
16
JR603
JR604
R652
R651
C655
R655
R654
R656
D667
D651
R653
C656
JW620
JW623
JW624
JW622
JW644
JW621
R667
D665
JR605
JR602
D664
C666
PH661
(S REEL)
JW645
JW647
JW646
S651
(REC PRF)
CN650
1
12
CN651
1
12
1-663-353-
11
6
7
8
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10
11
12
13
14

RP-
(HE

FL-78
(SWITC

MD-6
(MD D

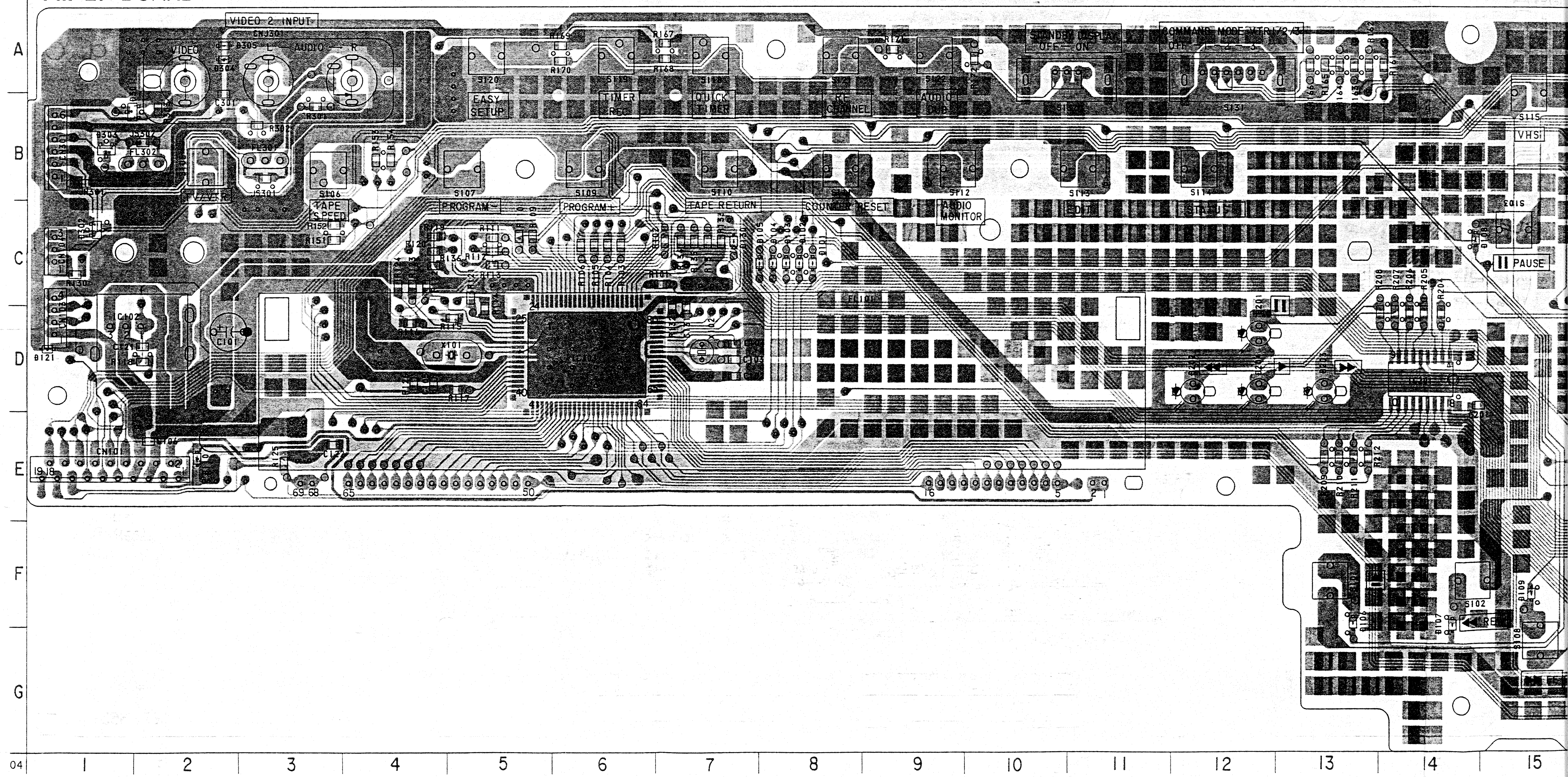
FM
(FU

FM-27 (DISPLAY/FUNCTION/SURROUND AMP CONTROL) FL-78 (SWITCH) FR-112 (SWITCH) PRINTED WIRING BOARDS

– Ref. No. FM-27 BOARD, FL-78 BOARD, FR-112 BOARD : 4,000 series –

FM-27 BOARD	
CN101	E-1
CN102	G-17
CN105	D-17
CN107	C-16
CN301	B-1
D101	C-8
D102	C-8
D103	C-8
D104	C-8
D105	C-8
D106	F-13
D107	F-14
D108	C-14
D109	F-15
D110	E-2
D130	C-7
D201	D-12
D202	D-12
D203	D-13
D204	D-12
D301	B-2
D302	C-1
D303	B-1
D304	A-2
IC101	D-6
IC102	D-1
IC201	D-14
Q101	F-17
Q102	F-17
Q103	F-16

FM–27 BOARD


VIDEO 2 INPUT
CN301
VIDEO
AUDIO
L
R
EASY SETUP
TIMER REC
QUICK TIMER
RF CHANNEL
AUDIO DUB
STANDBY DISPLAY OFF ON
COMMAND MODE VTR1/2/3
TAPE SPEED
PROGRAM –
PROGRAM +
TAPE RETURN
COUNTER RESET
AUDIO MONITOR
EDIT
STATUS
VHS
PAUSE
IC101
IC102
IC201
X101
CN101
A
B
C
D
E
F
G
04
1
2
3
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6
7
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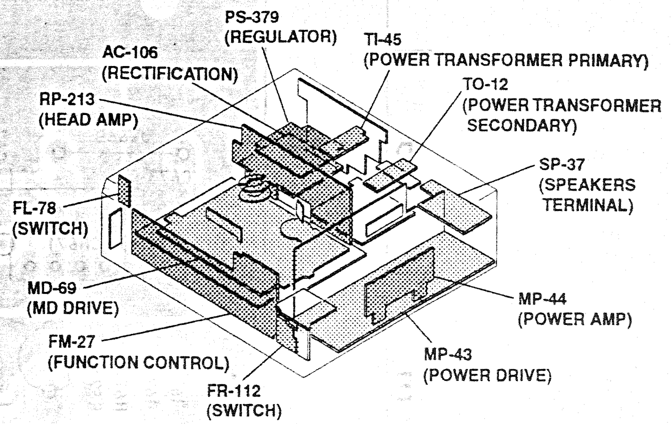
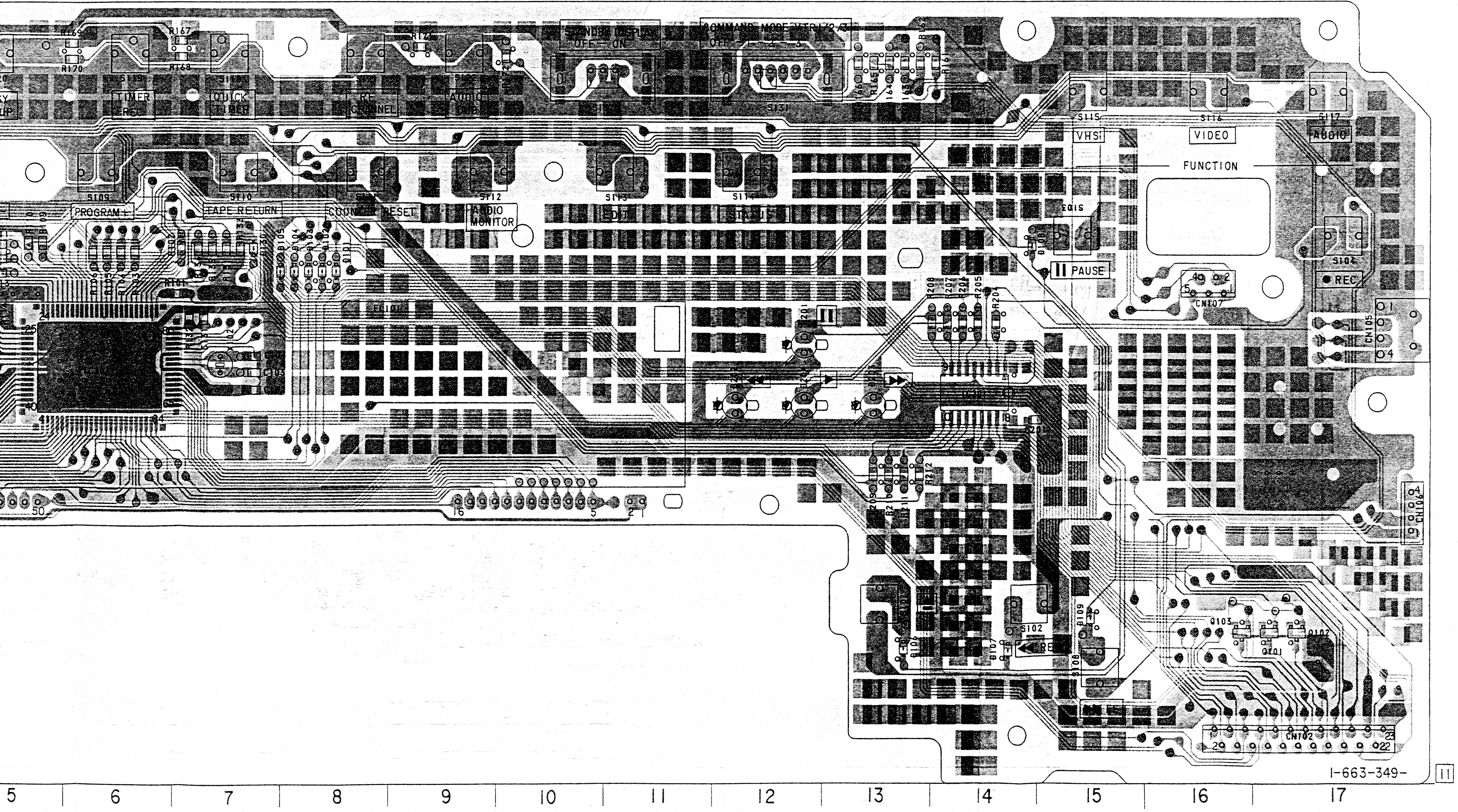
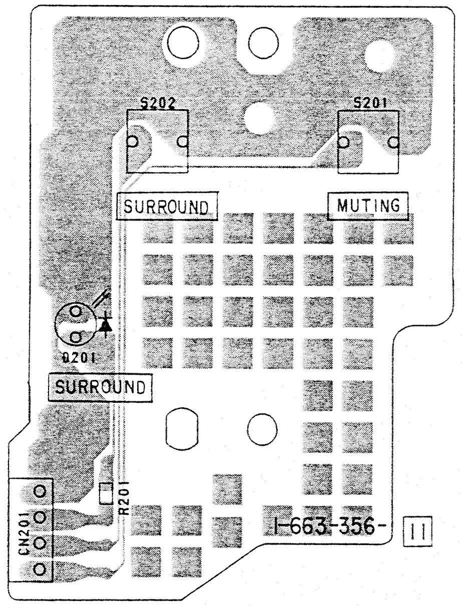
13
14
15


PS-379
(REGULATOR)
TI-45
(POWER TRANSFORMER PRIMARY)
AC-106
(RECTIFICATION)
TO-12
(POWER TRANSFORMER
SECONDARY)
RP-213
(HEAD AMP)
SP-37
(SPEAKERS
TERMINAL)
FL-78
(SWITCH)
MD-69
(MD DRIVE)
MP-44
(POWER AMP)
FM-27
(FUNCTION CONTROL)
MP-43
(POWER DRIVE)
FR-112
(SWITCH)

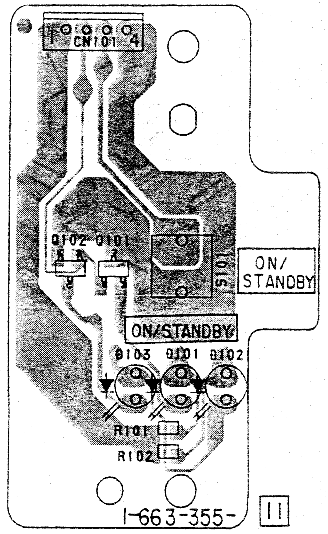
WITCH) FR-112 (SWITCH) PRINTED WIRING BOARDS


TIMER
REC
QUICK
TIMER
RF
CHANNEL
AUDIO
SHIFT
S131
S115
S116
S117
VHS
VIDEO
AUDIO
FUNCTION
S109
S110
S112
S113
S114
PROGRAM
TAPE RETURN
COUNTER RESET
AUDIO
MONITOR
EDIT
STATUS
PAUSE
S104
REC
CN107
CN105
CN106
S102
CN102
Q101
Q102
Q103
1-663-349-
11
5
6
7
8
9
10
11
12
13
14
15
16
17

FR–112 BOARD

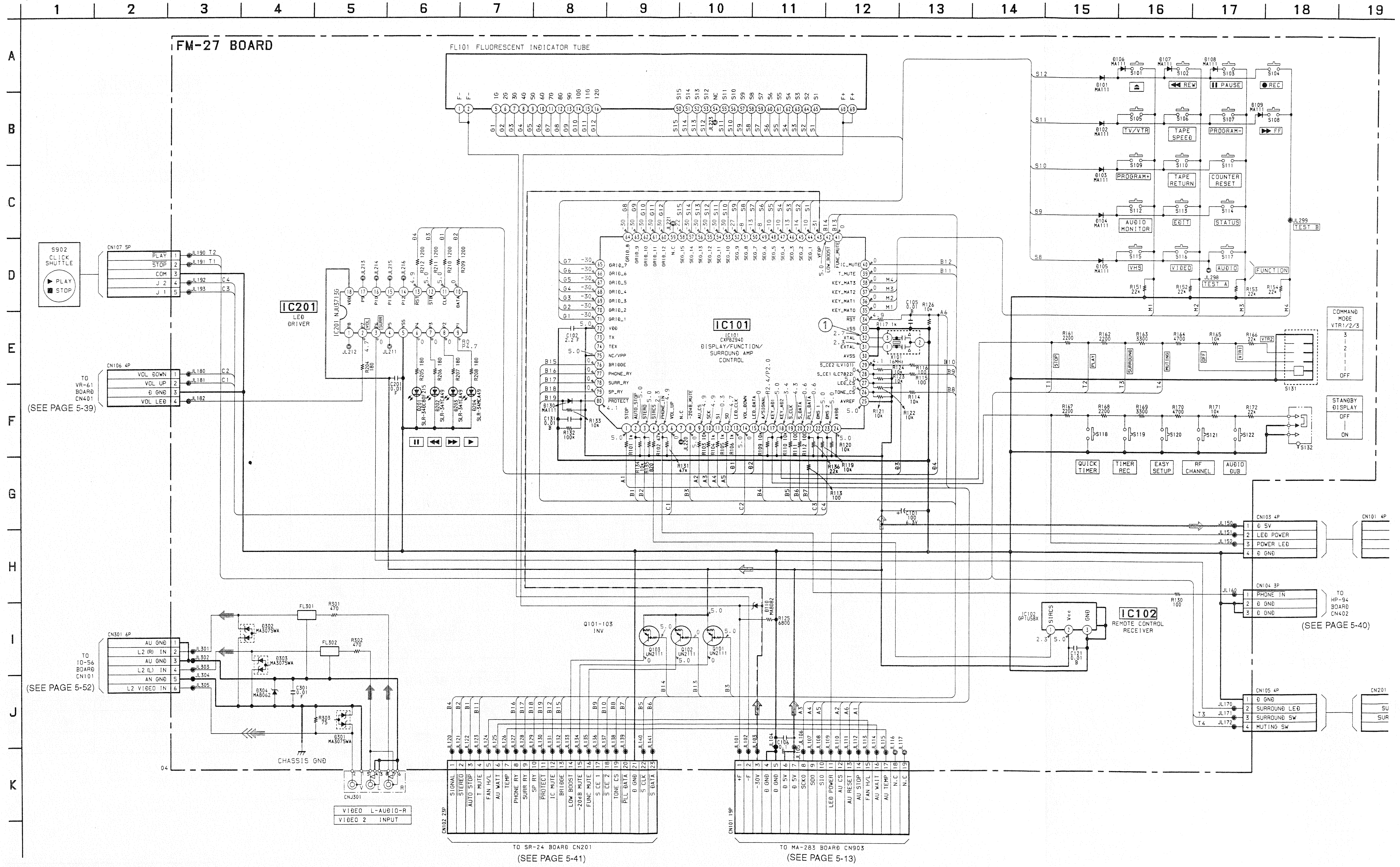

S202
S201
SURROUND
MUTING
D201
SURROUND
CN201
R201
1-663-356-
11

FL–78 BOARD

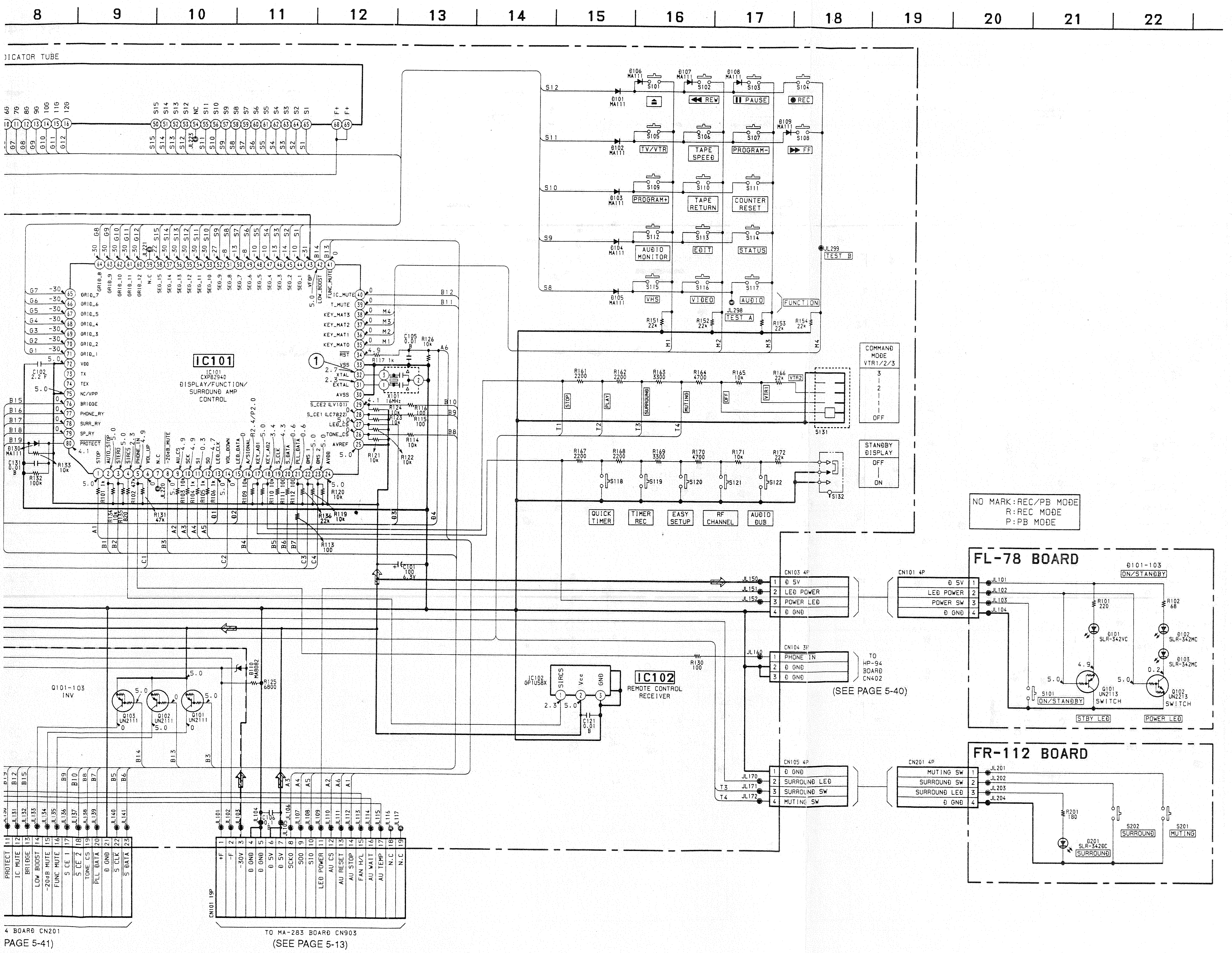

CN101
Q102
Q101
S101
ON/
STANDBY
ON/STANDBY
D103
D101
D102
R101
R102
1-663-355-
11

FM-27 (DISPLAY/FUNCTION/SURROUND AMP CONTROL) FL-78 (SWITCH) FR-112 (SWITCH) SCHEMATIC DIAGRAMS

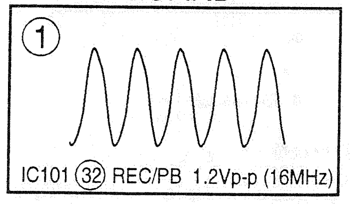
– Ref. No. FM-27 BOARD, FL-78 BOARD, FR-112 BOARD : 4,000 series –



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K
FM-27 BOARD
FL101 FLUORESCENT INDICATOR TUBE
S902 CLICK SHUTTLE
▶ PLAY
■ STOP
CN107 5P
PLAY
STOP
COM
J 2
J 1
IC201
LED DRIVER
IC201 NJU3713G
IC101
CXP82940
DISPLAY/FUNCTION/SURROUND AMP CONTROL
X101 16MHz
CN106 4P
VOL DOWN
VOL UP
D GND
VOL LED
TO VR-61 BOARD CN401
(SEE PAGE 5-39)
CN301 6P
AU GND
L2 (R) IN
AU GND
L2 (L) IN
AN GND
L2 VIDEO IN
TO IO-56 BOARD CN101
(SEE PAGE 5-52)
FL301
FL302
D302 MA3075WA
D303 MA3075WA
D304 MA8062
D301 MA3075WA
CHASSIS GND
CNJ301
VIDEO L-AUDIO-R
VIDEO 2 INPUT
Q101-103 INV
Q103 UN2111
Q102 UN2111
Q101 UN2111
D110 MA8082
CN102 23P
SIGNAL
STEREO
AUTO STOP
T MUTE
FAN H/L
AU WAIT
TEMP
PHONE RY
SURR RY
SP RY
PROTECT
IC MUTE
BRIDGE
LOW BOOST
-20dB MUTE
FUNC MUTE
S CE 1
S CE 2
TONE CS
PLL DATA
D GND
S CLK
S DATA
TO SR-24 BOARD CN201
(SEE PAGE 5-41)
CN101 19P
+F
-F
-30V
D GND
D GND
D 5V
D 5V
SCKO
SOO
SIO
LED POWER
AU CS
AU RESET
AU STOP
FAN H/L
AU WAIT
AU TEMP
N.C
N.C
TO MA-283 BOARD CN903
(SEE PAGE 5-13)
⏏
◀◀ REW
❙❙ PAUSE
● REC
TV/VTR
TAPE SPEED
PROGRAM−
▶▶ FF
PROGRAM+
TAPE RETURN
COUNTER RESET
AUDIO MONITOR
EDIT
STATUS
TEST B
VHS
VIDEO
AUDIO
FUNCTION
TEST A
COMMAND MODE VTR1/2/3
OFF
STANDBY DISPLAY
OFF
ON
S131
S132
QUICK TIMER
TIMER REC
EASY SETUP
RF CHANNEL
AUDIO DUB
CN103 4P
D 5V
LED POWER
POWER LED
D GND
CN101 4P
CN104 3P
PHONE IN
D GND
D GND
TO HP-94 BOARD CN402
(SEE PAGE 5-40)
IC102 GP1U58X
IC102
REMOTE CONTROL RECEIVER
CN105 4P
D GND
SURROUND LED
SURROUND SW
MUTING SW
CN201


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
IC101
CXP82940
DISPLAY/FUNCTION/
SURROUND AMP
CONTROL
IC102
GP1U58X
REMOTE CONTROL
RECEIVER
Q101-103
INV
REW
PAUSE
REC
TV/VTR
TAPE SPEED
PROGRAM-
FF
PROGRAM+
TAPE RETURN
COUNTER RESET
AUDIO MONITOR
EDIT
STATUS
VHS
VIDEO
AUDIO
FUNCTION
TEST A
TEST B
STOP
PLAY
SURROUND
MUTING
OFF
VTR1
VTR2
COMMAND MODE VTR1/2/3
STANDBY DISPLAY
QUICK TIMER
TIMER REC
EASY SETUP
RF CHANNEL
AUDIO DUB
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
FL-78 BOARD
D101-103 ON/STANDBY
S101 ON/STANDBY
Q101 UN2113 SWITCH
Q102 UN2213 SWITCH
STBY LED
POWER LED
FR-112 BOARD
S202 SURROUND
S201 MUTING
D201 SURROUND
CN103 4P
CN101 4P
CN104 3P
CN105 4P
CN201 4P
TO HP-94 BOARD CN402
(SEE PAGE 5-40)
CN101 19P
TO MA-283 BOARD CN903
(SEE PAGE 5-13)
4 BOARD CN201
PAGE 5-41)
ICATOR TUBE

FM-27 BOARD



IC101 ㉜ REC/PB 1.2Vp-p (16MHz)

● **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			⇛	⇨
PB				

FUNCTION/SURROUND AMP CONTROL
FM-27, FL-78, FR-112

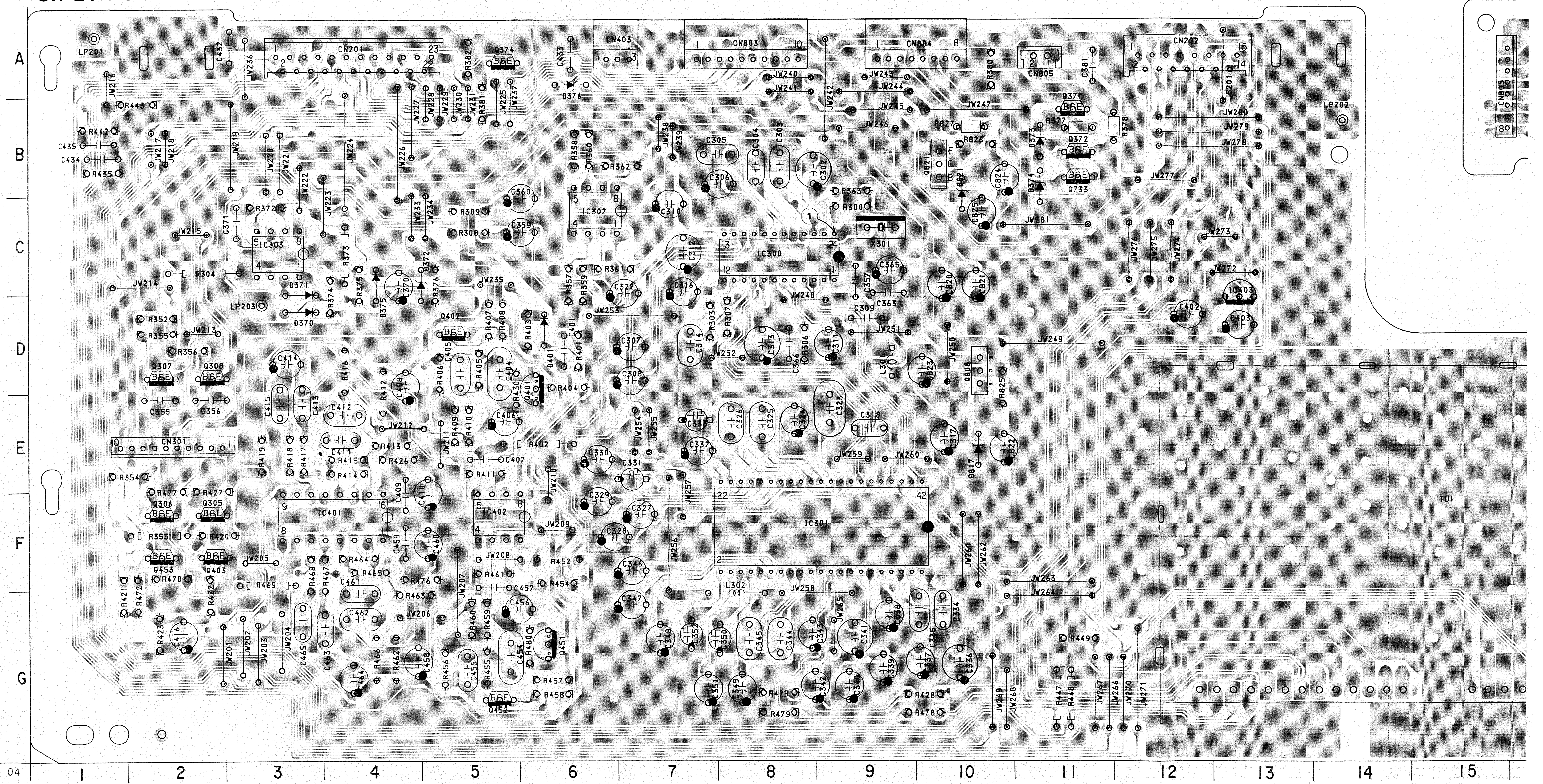
SR-24 (SURROUND PROCESS) RG-40 (REGULATOR) PRINTED WIRING BOARDS

– Ref. No. SR-24 BOARD, RG-40 BOARD : 5,000 series –

- There are few cases that the part isn't mounted in this model is printed on this diagram.

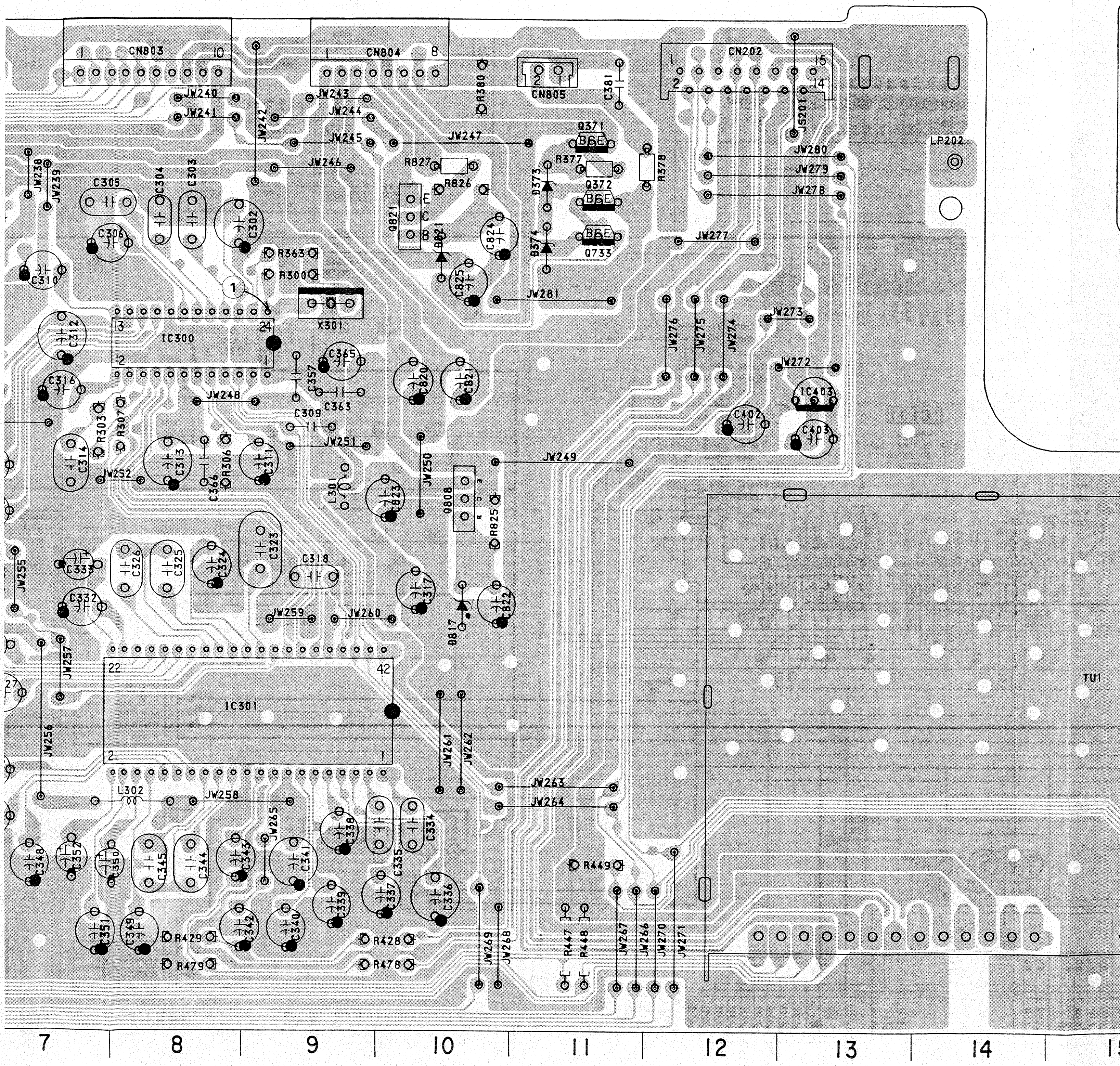
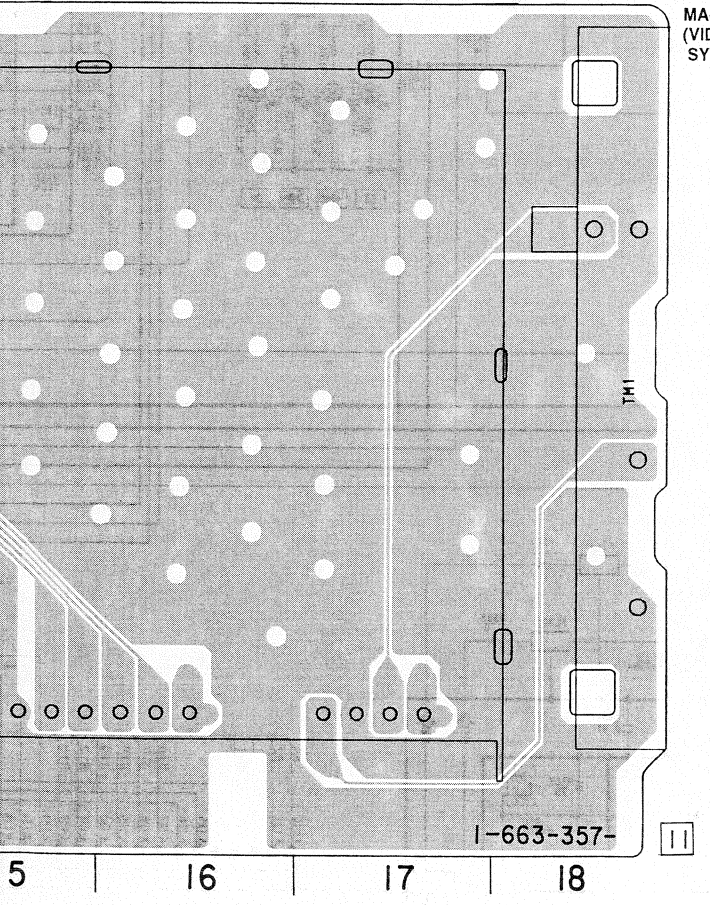
SR-24 BOARD

RG–40

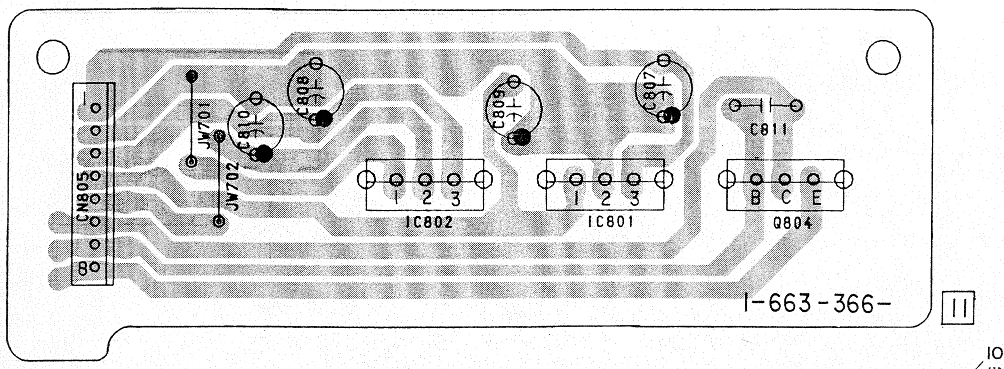


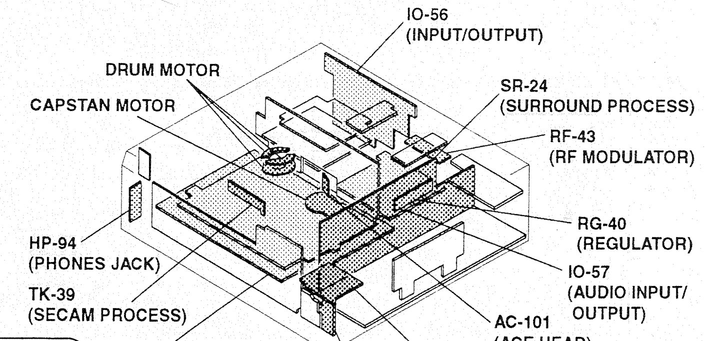
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
04
LP201
LP202
LP203
CN201
CN403
CN803
CN804
CN805
CN202
CN301
IC300
IC301
IC302
IC303
IC401
IC402
IC403
X301
L301
L302
TU1
Q305
Q306
Q307
Q308
Q371
Q372
Q374
Q401
Q402
Q403
Q451
Q452
Q453
Q733
Q808
Q821
D370
D371
D372
D373
D374
D375
D376
D401
D817
D821
JW201
JW202
JW203
JW204
JW205
JW206
JW207
JW208
JW209
JW210
JW211
JW212
JW213
JW214
JW215
JW216
JW217
JW218
JW219
JW220
JW221
JW222
JW223
JW224
JW225
JW226
JW227
JW228
JW229
JW230
JW231
JW233
JW234
JW235
JW236
JW237
JW238
JW239
JW240
JW241
JW242
JW243
JW244
JW245
JW246
JW247
JW248
JW249
JW250
JW251
JW252
JW253
JW254
JW255
JW256
JW257
JW258
JW259
JW260
JW261
JW262
JW263
JW264
JW265
JW266
JW267
JW268
JW269
JW270
JW271
JW272
JW273
JW274
JW275
JW276
JW277
JW278
JW279
JW280
JW281
BBE

- There are few cases that the part isn't mounted in this model is printed on this diagram.



CN803
CN804
CN805
CN202
IC300
IC301
X301
TU1
TH1
LP202
Q371
Q372
Q733
Q808
Q821
IC403
C402
C403
1-663-357-
11
7
8
9
10
11
12
13
14
15
16
17
18

RG–40 BOARD

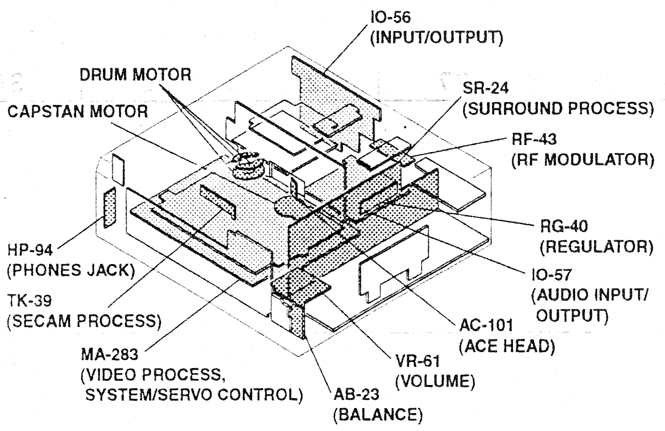

CN805
JW701
JW702
C810
C808
C809
C807
C811
IC802
IC801
Q804
1 2 3
1 2 3
B C E
1-663-366-
11


IO-56
(INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24
(SURROUND PROCESS)
RF-43
(RF MODULATOR)
RG-40
(REGULATOR)
HP-94
(PHONES JACK)
IO-57
(AUDIO INPUT/
OUTPUT)
TK-39
(SECAM PROCESS)
AC-101
(ACE HEAD)
MA-283
(VIDEO PROCESS,
SYSTEM/SERVO CONTROL)
VR-61
(VOLUME)
AB-23
(BALANCE)

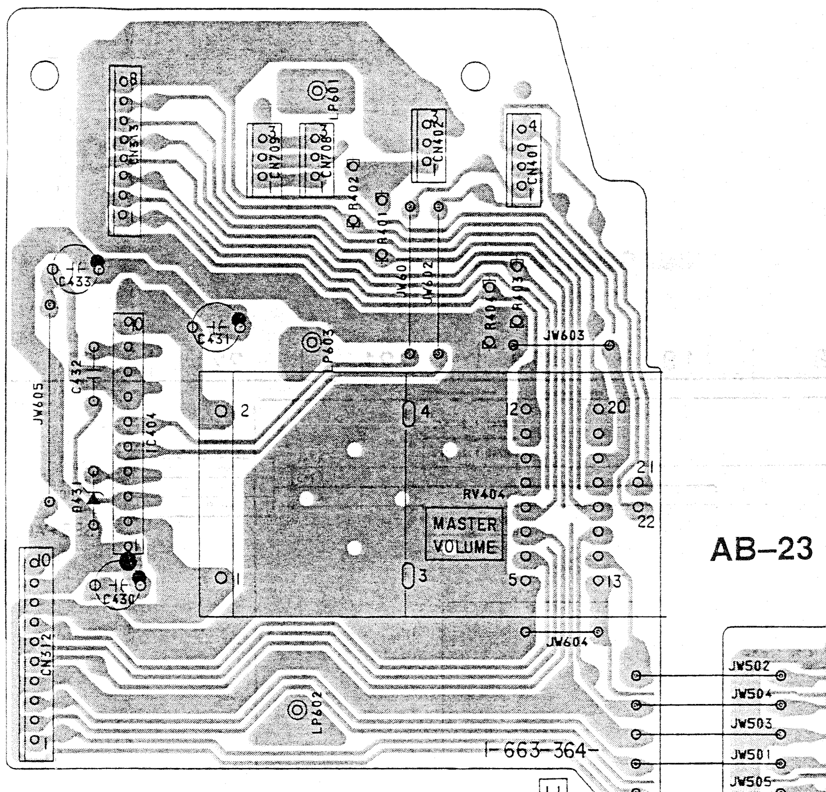
SR-24 BOARD	
CN201	A-4
CN202	A-12
CN301	E-2
CN403	A-6
CN803	A-8
CN804	A-9
CN805	A-11
D370	D-3
D371	C-3
D372	C-5
D373	B-11
D374	B-11
D375	C-4
D376	A-6
D401	D-6
D817	E-10
D821	B-10
IC300	C-8
IC301	F-8
IC302	C-6
IC303	C-3
IC401	F-4
IC402	F-5
IC403	C-13
Q305	F-2
Q306	F-2
Q307	D-2
Q308	D-2
Q371	B-11
Q372	B-11
Q374	A-5
Q401	D-6
Q402	D-5
Q403	F-2
Q451	G-6
Q452	G-5
Q453	F-2
Q733	B-11
Q808	D-10
Q821	B-10

VR-61 (VOLUME) AB-23 (BALANCE) HP-94 (PHONES JACK) PRINTED

– Ref. No. VR-61 BOARD, AB-23 BOARD, HP-94 BOARD : 5,000 series –

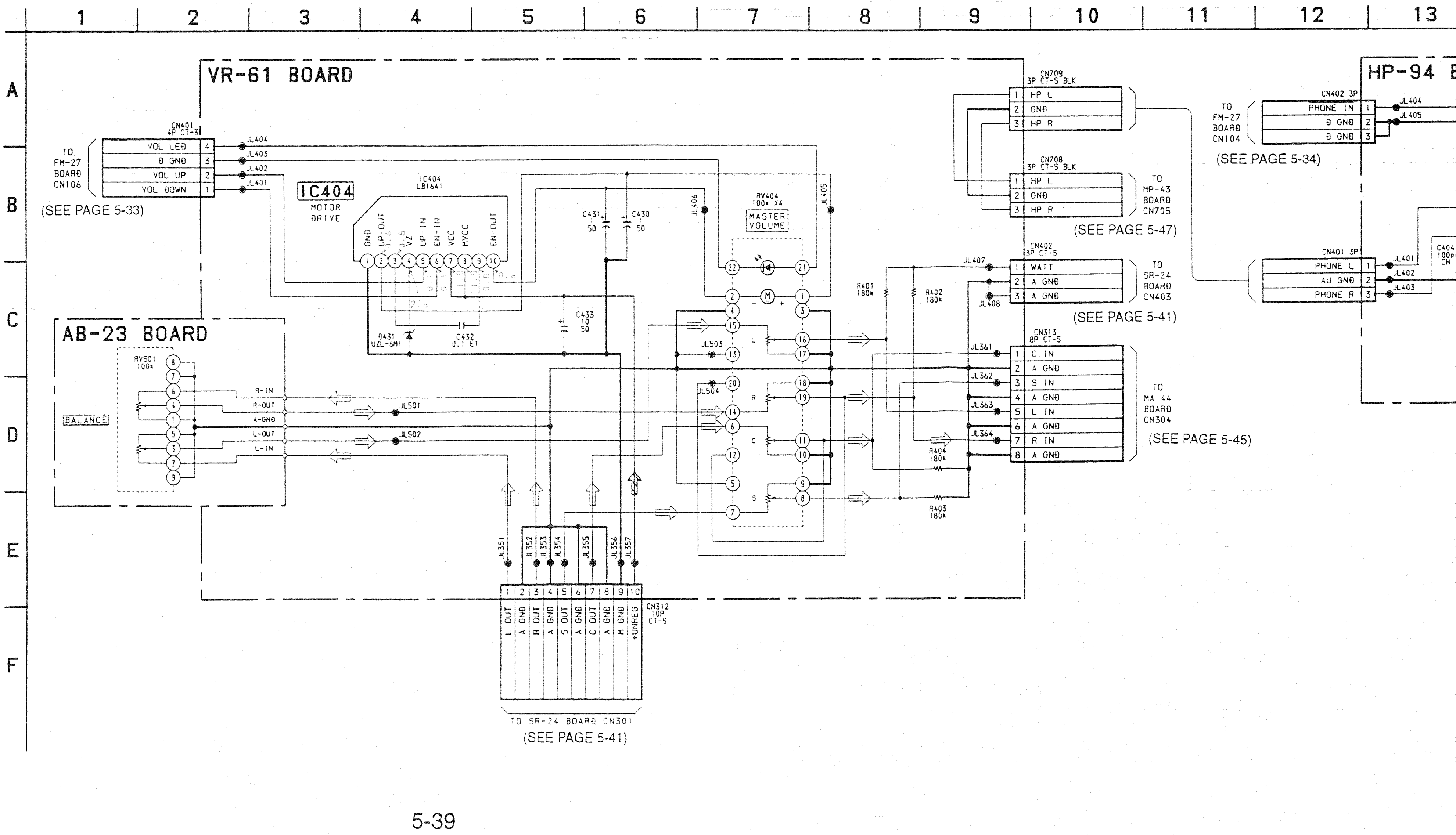

IO-56
(INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24
(SURROUND PROCESS)
RF-43
(RF MODULATOR)
RG-40
(REGULATOR)
HP-94
(PHONES JACK)
IO-57
(AUDIO INPUT/
OUTPUT)
TK-39
(SECAM PROCESS)
AC-101
(ACE HEAD)
MA-283
(VIDEO PROCESS,
SYSTEM/SERVO CONTROL)
VR-61
(VOLUME)
AB-23
(BALANCE)

VR–61 BOARD


CN313
CN709
CN708
CN402
CN401
P601
R402
R401
C433
C431
C432
C430
JW601
JW602
JW603
JW604
JW605
P603
P602
RV404
MASTER
VOLUME
CN312
1-663-364-
11
AB–23
JW502
JW504
JW503
JW501
JW505

VR-61 (VOLUME) AB-23 (BALANCE) HP-94 (PHONES JACK) SCHEMATIC DIAGRAMS

– Ref. No. VR-61 BOARD, AB-23 BOARD, HP-94 BOARD : 5,000 series –


1
2
3
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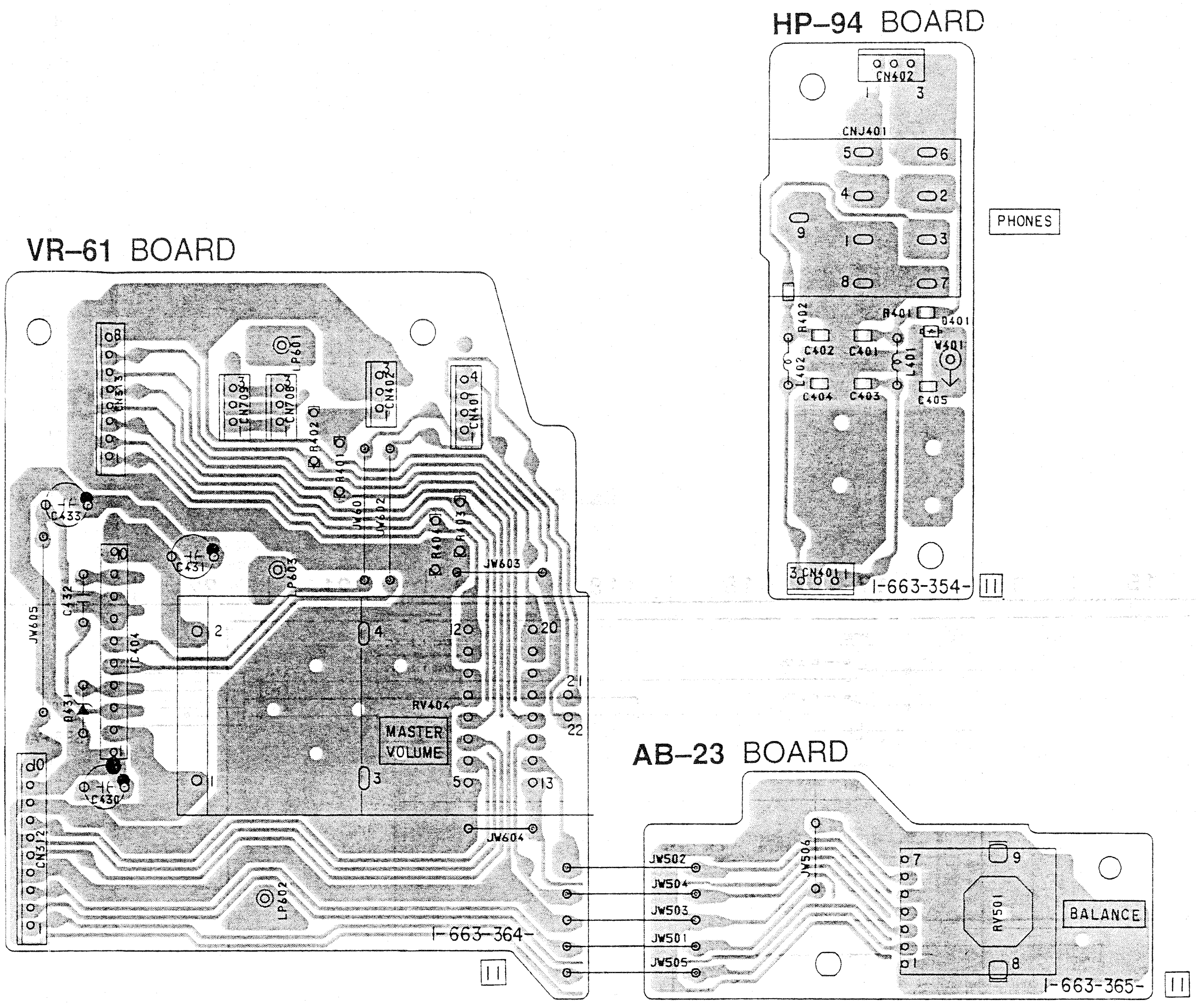
9
10
11
12
13
A
B
C
D
E
F
VR-61 BOARD
CN401 4P CT-S
VOL LED
B GND
VOL UP
VOL DOWN
TO FM-27 BOARD CN106
(SEE PAGE 5-33)
IC404
MOTOR DRIVE
IC404 LB1641
GND
UP-OUT
VZ
UP-IN
DN-IN
VCC
MVCC
DN-OUT
C431 50
C430 50
RV404 100k X4
MASTER VOLUME
C433 10 50
D431 UZL-5M1
C432 0.1 ET
R401 180k
R402 180k
R404 180k
R403 180k
CN709 3P CT-S BLK
HP L
GND
HP R
CN708 3P CT-S BLK
TO MP-43 BOARD CN705
(SEE PAGE 5-47)
CN402 3P CT-S
WATT
A GND
TO SR-24 BOARD CN403
(SEE PAGE 5-41)
CN313 8P CT-S
C IN
S IN
L IN
R IN
TO MA-44 BOARD CN304
(SEE PAGE 5-45)
AB-23 BOARD
RV501 100k
BALANCE
R-IN
R-OUT
A-GND
L-OUT
L-IN
JL501
JL502
CN312 10P CT-S
L OUT
A GND
R OUT
S OUT
C OUT
M GND
+UNREG
TO SR-24 BOARD CN301
(SEE PAGE 5-41)
HP-94
CN402 3P
PHONE IN
B GND
TO FM-27 BOARD CN104
(SEE PAGE 5-34)
CN401 3P
PHONE L
AU GND
PHONE R

- There are few cases that the part isn't mounted in this model is printed on this diagram.

VR-61 (VOLUME) AB-23 (BALANCE) HP-94 (PHONES JACK) PRINTED WIRING BOARDS

– Ref. No. VR-61 BOARD, AB-23 BOARD, HP-94 BOARD : 5,000 series –



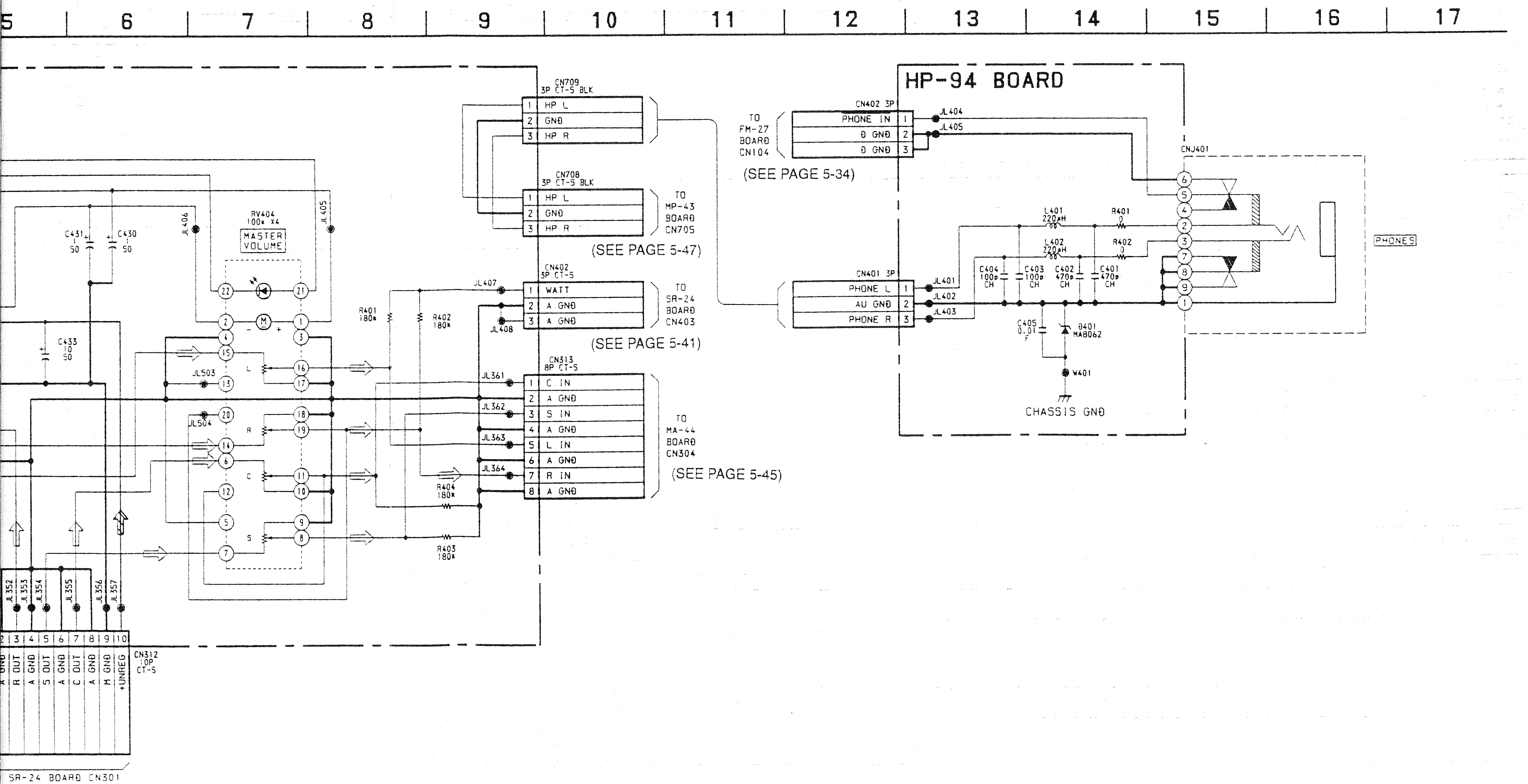
HP–94 BOARD
CN402
1
3
CNJ401
5
6
4
2
9
1
3
8
7
PHONES
R402
R401
D401
W401
C402
C401
L402
L401
C404
C403
C405
3 CN401 1
1-663-354-
11
VR–61 BOARD
CN513
CN709
CN708
LP601
CN402
CN401
R402
R401
JW601
JW602
R403
R404
JW603
C433
C431
C432
IC404
JW605
R406
RV404
MASTER VOLUME
C430
CN312
JW604
LP602
1-663-364-
11
AB–23 BOARD
JW502
JW504
JW503
JW501
JW505
JW506
RV501
BALANCE
1-663-365-
11

UND PROCESS)
-43
F MODULATOR)

RG-40
(REGULATOR)
IO-57
(AUDIO INPUT/
OUTPUT)
AD)

ACK) SCHEMATIC DIAGRAMS

ies –



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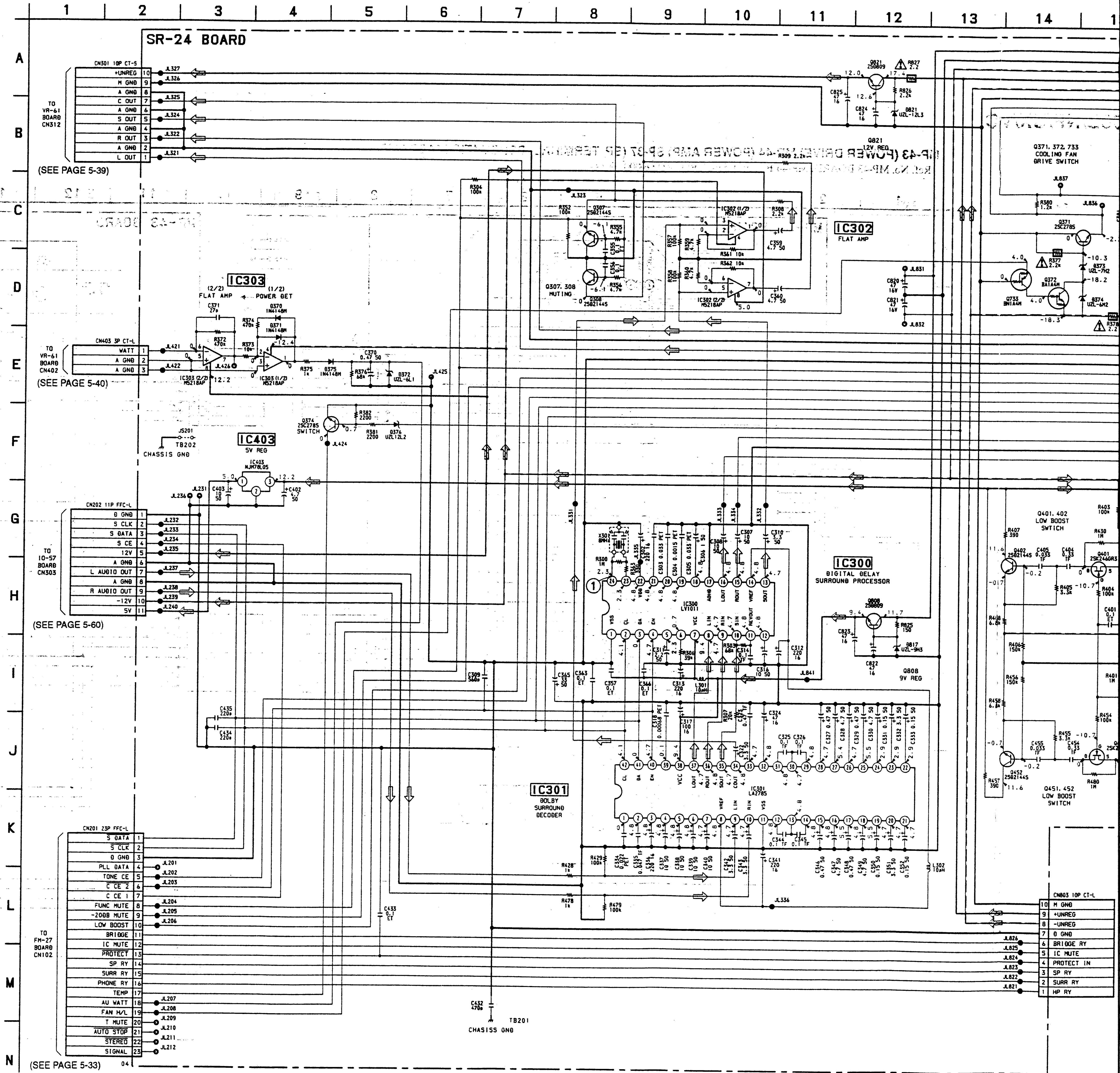
16
17
HP–94 BOARD
CN709 3P CT-S BLK
HP L
GND
HP R
CN708 3P CT-S BLK
HP L
GND
HP R
TO MP-43 BOARD CN705
(SEE PAGE 5-47)
CN402 3P CT-S
WATT
A GND
A GND
TO SR-24 BOARD CN403
(SEE PAGE 5-41)
CN513 8P CT-S
C IN
A GND
S IN
A GND
L IN
A GND
R IN
A GND
TO MA-44 BOARD CN304
(SEE PAGE 5-45)
TO FM-27 BOARD CN104
(SEE PAGE 5-34)
CN402 3P
PHONE IN
D GND
D GND
CN401 3P
PHONE L
AU GND
PHONE R
JL404
JL405
JL401
JL402
JL403
CNJ401
L401 220μH
L402 220μH
R401 3
R402 3
C404 100p CH
C403 100p CH
C402 470p CH
C401 470p CH
C405 0.01 F
D401 MA8062
W401
CHASSIS GND
PHONES
RV404 100k X4
MASTER VOLUME
C451 10 50
C430 10 50
C433 10 50
JL406
JL405
JL407
JL408
R401 180k
R402 180k
R404 180k
R403 180k
JL361
JL362
JL363
JL364
JL503
JL504
M
L
R
C
S
JL352
JL353
JL354
JL355
JL356
JL357
A GND
R OUT
A GND
S OUT
A GND
C OUT
A GND
H GND
+UNREG
CN312 10P CT-S
SR-24 BOARD CN301
(SEE PAGE 5-41)

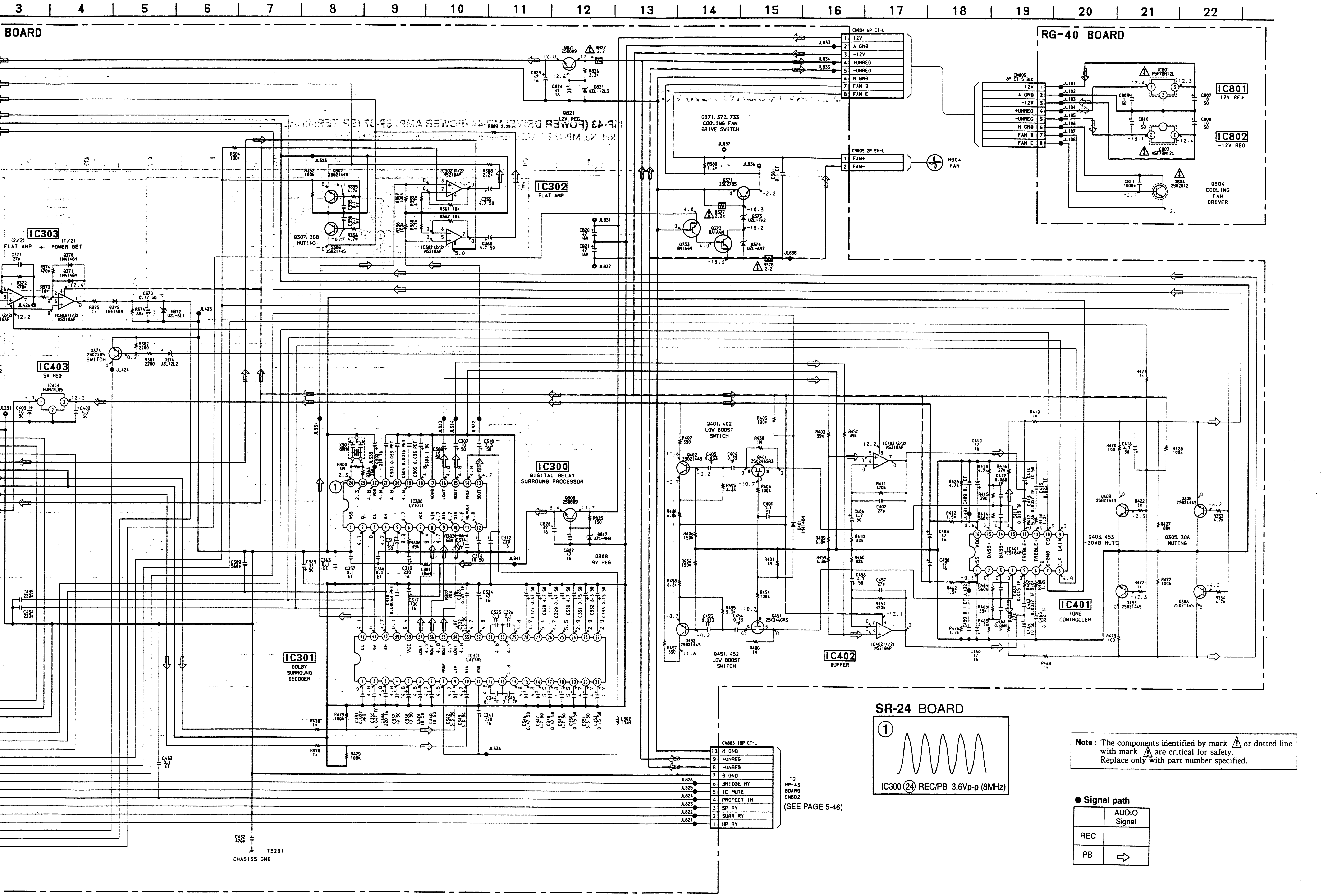
SR-24 (SURROUND PROCESS) RG-40 (REGULATOR) SCHEMATIC DIAGRAMS

– Ref. No. SR-24 BOARD, RG-40 BOARD : 5,000 series –



SR-24 BOARD
CN301 10P CT-5
+UNREG 10
M GND 9
A GND 8
C OUT 7
A GND 6
S OUT 5
A GND 4
R OUT 3
A GND 2
L OUT 1
TO VR-61 BOARD CN312
(SEE PAGE 5-39)
IC303
(2/2) FLAT AMP
(1/2) POWER DET
CN403 3P CT-L
WATT 1
A GND 2
A GND 3
TO VR-61 BOARD CN402
(SEE PAGE 5-40)
JS201
TB202
CHASSIS GND
Q374 2SC2785 SWITCH
IC403
5V REG
IC403 NJM78L05
CN202 11P FFC-L
D GND 1
S CLK 2
S DATA 3
S CE 4
12V 5
A GND 6
L AUDIO OUT 7
A GND 8
R AUDIO OUT 9
-12V 10
5V 11
TO IO-57 BOARD CN303
(SEE PAGE 5-60)
CN201 23P FFC-L
S DATA 1
S CLK 2
D GND 3
PLL DATA 4
TONE CE 5
C CE 2 6
C CE 1 7
FUNC MUTE 8
-20dB MUTE 9
LOW BOOST 10
BRIDGE 11
IC MUTE 12
PROTECT 13
SP RY 14
SURR RY 15
PHONE RY 16
TEMP 17
AU WATT 18
FAN H/L 19
T MUTE 20
AUTO STOP 21
STEREO 22
SIGNAL 23
TO FM-27 BOARD CN102
(SEE PAGE 5-33)
Q307, 308 MUTING
IC302
FLAT AMP
IC302 (1/2) M5218AP
IC302 (2/2) M5218AP
IC300
DIGITAL DELAY SURROUND PROCESSOR
IC300 LV1011
IC301
DOLBY SURROUND DECODER
IC301 LA2785
C432 470μ
TB201
CHASISS GND
Q821 2SD809
Q821 12V REG
Q808 2SD809
Q808 9V REG
Q371, 372, 733 COOLING FAN DRIVE SWITCH
Q401, 402 LOW BOOST SWITCH
Q451, 452 LOW BOOST SWITCH
CN803 10P CT-L
M GND 10
+UNREG 9
-UNREG 8
D GND 7
BRIDGE RY 6
IC MUTE 5
PROTECT IN 4
SP RY 3
SURR RY 2
HP RY 1

ESS) RG-40 (REGULATOR) SCHEMATIC DIAGRAMS
) BOARD : 5,000 series –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21
22
BOARD
RG-40 BOARD
IC801
12V REG
IC802
-12V REG
IC801 M5F78M12L
IC802 M5F79M12L
Q804 2SD2012
Q804 COOLING FAN DRIVER
CN805 8P CT-5 BLK
12V
A GND
-12V
+UNREG
-UNREG
M GND
FAN B
FAN E
CN804 8P CT-L
12V
A GND
-12V
+UNREG
-UNREG
M GND
FAN B
FAN E
CN805 2P EH-L
FAN+
FAN-
M904 FAN
Q821 2SD809
Q821 12V REG
Q371, 372, 733 COOLING FAN DRIVE SWITCH
Q371 2SC2785
Q372 BA1A4M
Q733 BN1A4M
IC302
FLAT AMP
IC302 (1/2) M5218AP
IC302 (2/2) M5218AP
Q307 2SD2144S
Q308 2SD2144S
Q307, 308 MUTING
IC303
(2/2) FLAT AMP
(1/2) POWER DET
IC303 (1/2) M5218AP
Q374 2SC2785 SWITCH
IC403
5V REG
IC403 NJM78L05
IC300
DIGITAL DELAY SURROUND PROCESSOR
IC300 LV1011
X301 8MHz
Q808 2SD809
Q808 9V REG
IC301
DOLBY SURROUND DECODER
IC301 LA2785
Q401, 402 LOW BOOST SWTICH
Q401 2SK246GR3
Q402 2SD2144S
Q451 2SK246GR3
Q452 2SD2144S
Q451, 452 LOW BOOST SWITCH
IC402 (2/2) M5218AP
IC402 (1/2) M5218AP
IC402
BUFFER
IC401
TONE CONTROLLER
IC401 TC9184P
Q403 2SD2144S
Q453 2SD2144S
Q403, 453 -20dB MUTE
Q305 2SD2144S
Q306 2SD2144S
Q305, 306 MUTING
CN803 10P CT-L
M GND
+UNREG
-UNREG
D GND
BRIDGE RY
IC MUTE
PROTECT IN
SP RY
SURR RY
HP RY
TO MP-43 BOARD CN802
(SEE PAGE 5-46)
TB201
CHASISS GND
SR-24 BOARD
①
IC300 ㉔ REC/PB 3.6Vp-p (8MHz)

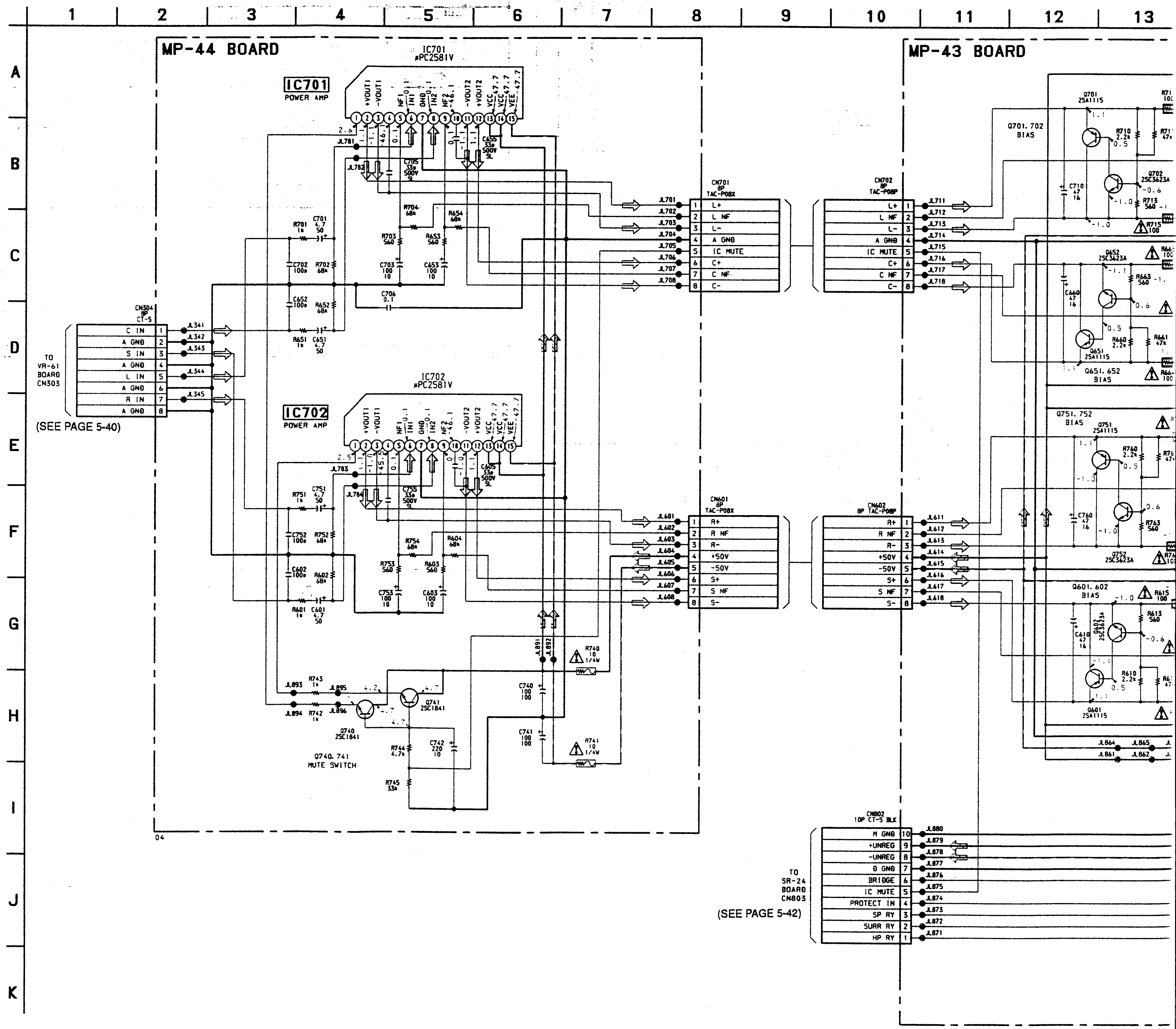
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

● **Signal path**

	AUDIO Signal
REC	
PB	⇨

MP-43 (POWER DRIVE) MP-44 (POWER AMP) SP-37 (SP TERMINAL) SCHEMATIC DIAGRAMS

– Ref. No. MP-43 BOARD, MP-44 BOARD, SP-37 BOARD : 6,000 series –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13
A
B
C
D
E
F
G
H
I
J
K
MP-44 BOARD
MP-43 BOARD
IC701
POWER AMP
IC701 µPC2581V
+VOUT1
-VOUT1
NF1
IN1
GND
IN2
NF2
-VOUT2
+VOUT2
VCC
VEE
IC702
POWER AMP
IC702 µPC2581V
CN304 8P CT-S
C IN
A GND
S IN
L IN
R IN
TO VR-61 BOARD CN303
(SEE PAGE 5-40)
CN701 8P TAC-P08X
CN702 8P TAC-P08P
L+
L NF
L-
A GND
IC MUTE
C+
C NF
C-
CN601 8P TAC-P08X
CN602 8P TAC-P08P
R+
R NF
R-
+50V
-50V
S+
S NF
S-
Q740, 741 MUTE SWITCH
Q740 2SC1841
Q741 2SC1841
Q701, 702 BIAS
Q651, 652 BIAS
Q751, 752 BIAS
Q601, 602 BIAS
CN802 10P CT-S BLK
M GND
+UNREG
-UNREG
B GND
BRIDGE
IC MUTE
PROTECT IN
SP RY
SURR RY
HP RY
TO SR-24 BOARD CN803
(SEE PAGE 5-42)

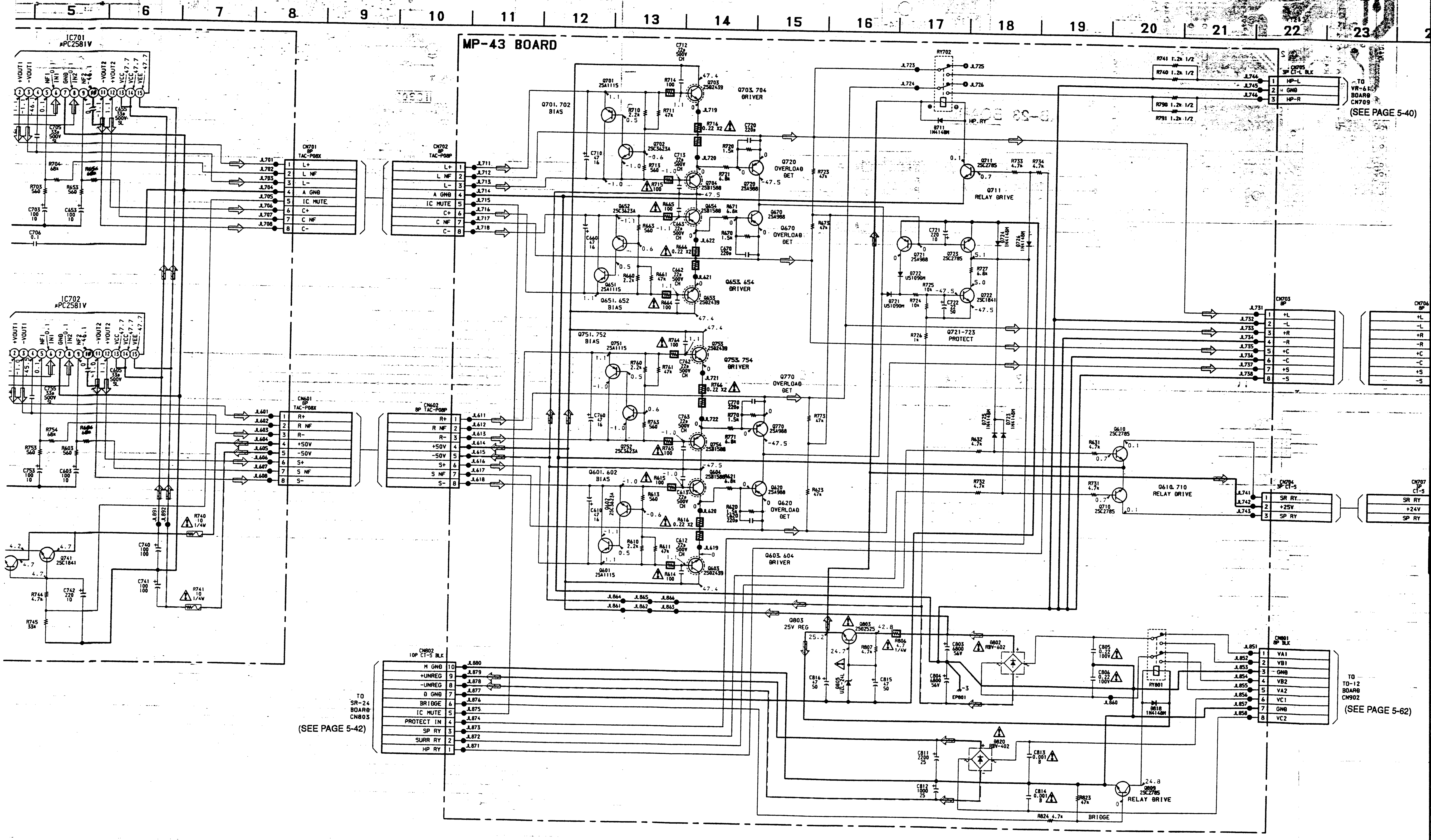
● Signal path

	AUDIO Signal
REC	
PB	⇨

5-44

P-37 (SP TERMINAL) SCHEMATIC DIAGRAMS

.6,000 series


5
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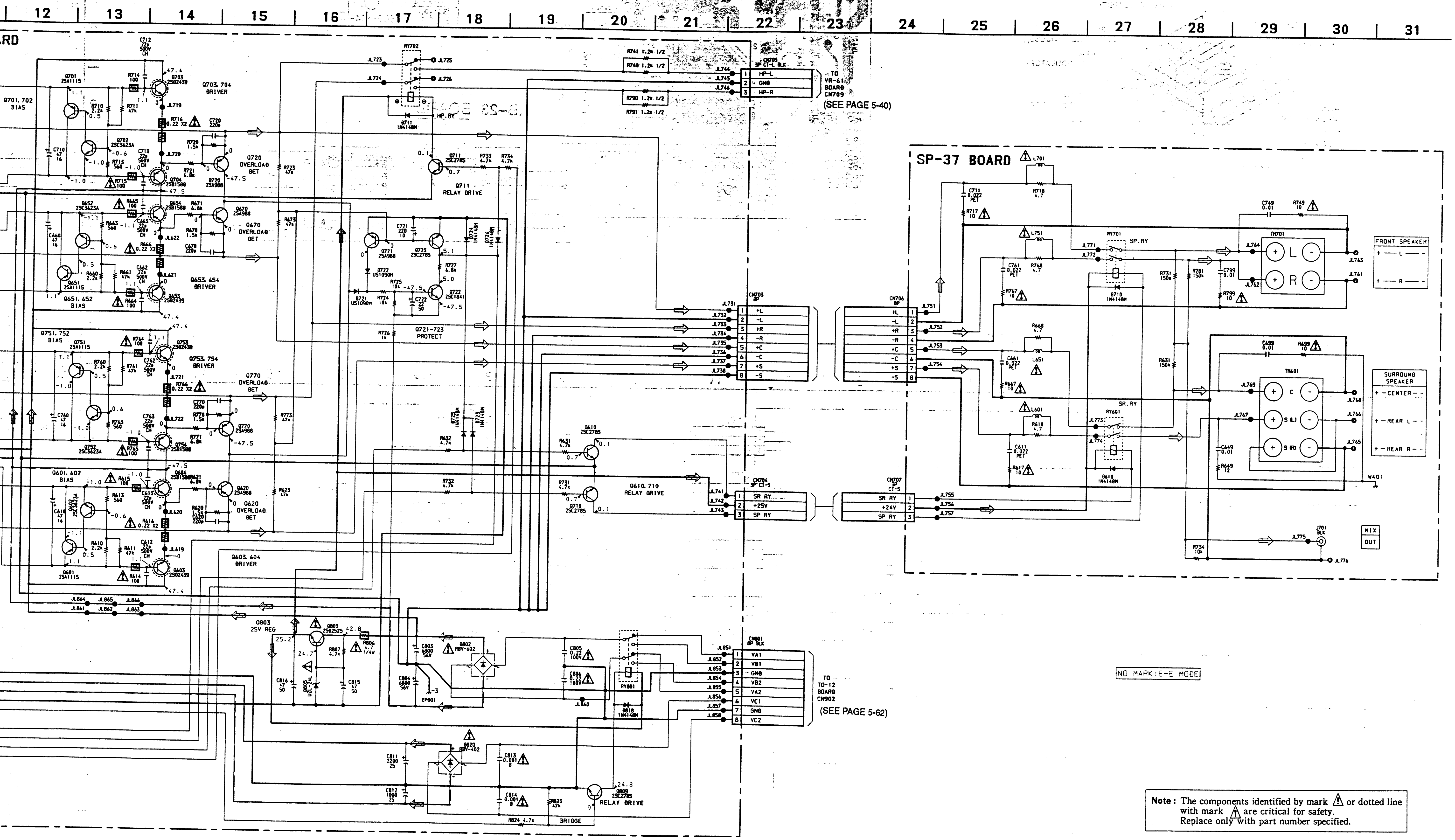
21
22
23
MP-43 BOARD
IC701 μPC2581V
IC702 μPC2581V
+VOUT1
-VOUT1
NF1
IN1
GND
IN2
NF2
-VOUT2
+VOUT2
VCC
VEE
CN701 8P TAC-P08X
CN702 8P TAC-P08P
L+
L NF
L-
A GND
IC MUTE
C+
C NF
C-
CN601 8P TAC-P08X
CN602 8P TAC-P08P
R+
R NF
R-
+50V
-50V
S+
S NF
S-
Q701, 702 BIAS
Q703, 704 DRIVER
Q720 OVERLOAD DET
Q711 RELAY DRIVE
Q652 2SC3623A
Q654 2SB1588
Q670 OVERLOAD DET
Q653, 654 DRIVER
Q651, 652 BIAS
Q721-723 PROTECT
Q751, 752 BIAS
Q753, 754 DRIVER
Q770 OVERLOAD DET
Q601, 602 BIAS
Q620 OVERLOAD DET
Q603, 604 DRIVER
Q610, 710 RELAY DRIVE
Q741 2SC1841
Q803 25V REG
Q802 RBV-402
Q820 RBV-402
Q809 2SC2785 RELAY DRIVE
RY702
RY801
D711 1N4148M
D818 1N4148M
CN705 3P CT-L BLK
HP-L
GND
HP-R
TO VR-61 BOARD CN709
(SEE PAGE 5-40)
CN703 8P
+L
-L
+R
-R
+C
-C
+S
-S
CN704 3P CT-S
SR RY
+25V
SP RY
CN801 8P BLK
VA1
VB1
GND
VB2
VA2
VC1
GND
VC2
TO TO-12 BOARD CN902
(SEE PAGE 5-62)
CN802 10P CT-S BLK
M GND
+UNREG
-UNREG
D GND
BRIDGE
IC MUTE
PROTECT IN
SP RY
SURR RY
HP RY
TO SR-24 BOARD CN803
(SEE PAGE 5-42)
EP801
BRIDGE


SP-37 BOARD
Q701, 702 BIAS
Q703, 704 DRIVER
Q720 OVERLOAD DET
Q711 RELAY DRIVE
HP.RY
RY702
Q670 OVERLOAD DET
Q653, 654 DRIVER
Q651, 652 BIAS
Q721-723 PROTECT
Q751, 752 BIAS
Q753, 754 DRIVER
Q770 OVERLOAD DET
Q601, 602 BIAS
Q620 OVERLOAD DET
Q603, 604 DRIVER
Q610, 710 RELAY DRIVE
Q803 25V REG
Q802 RBV-602
Q820 RBV-402
Q809 2SC2785 RELAY DRIVE
BRIDGE
RY801
CN705 3P CT-L BLK
HP-L
GND
HP-R
TO VR-61 BOARD CN709
(SEE PAGE 5-40)
CN703 8P
+L
-L
+R
-R
+C
-C
+S
-S
CN704 8P
CN706 3P CT-S
SR RY
+25V
SP RY
CN707 3P CT-S
SR RY
+24V
SP RY
CN801 8P BLK
VA1
VB1
GND
VB2
VA2
VC1
GND
VC2
TO TO-12 BOARD CN902
(SEE PAGE 5-62)
RY701 SP.RY
RY601 SR.RY
TM701
L
R
FRONT SPEAKER
+ — L — -
+ — R — -
TM601
C
S L
S R
SURROUND SPEAKER
+ — CENTER — -
+ — REAR L — -
+ — REAR R — -
J701 BLK
MIX OUT
W401
NO MARK : E-E MODE

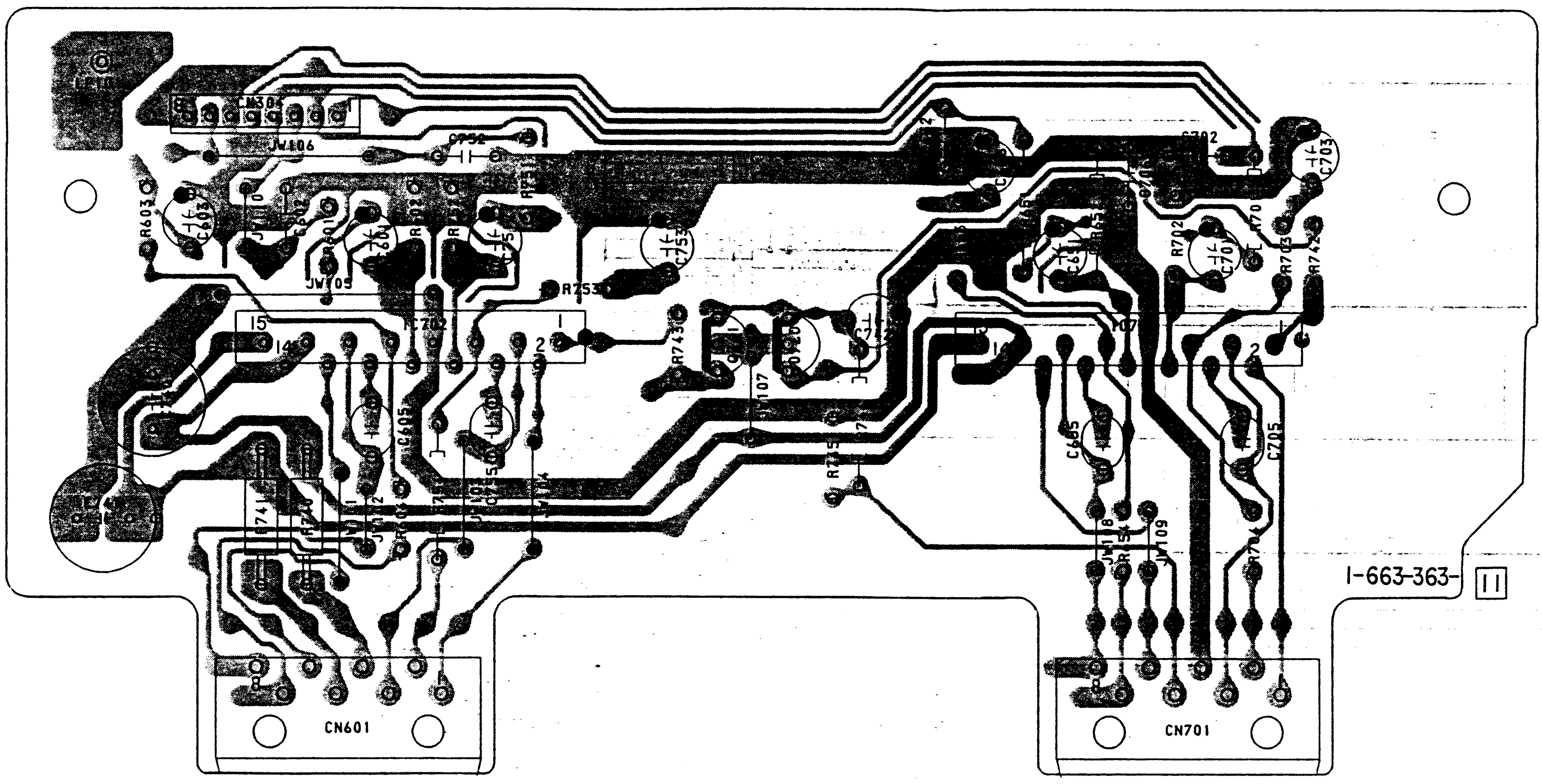
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

• There are few cases that the
this model is printed on this

MP-43 (POWER DRIVE) MP-44 (POWER AMP) SP-37 (SP TERMINAL) PRINTED WIRING BOARDS

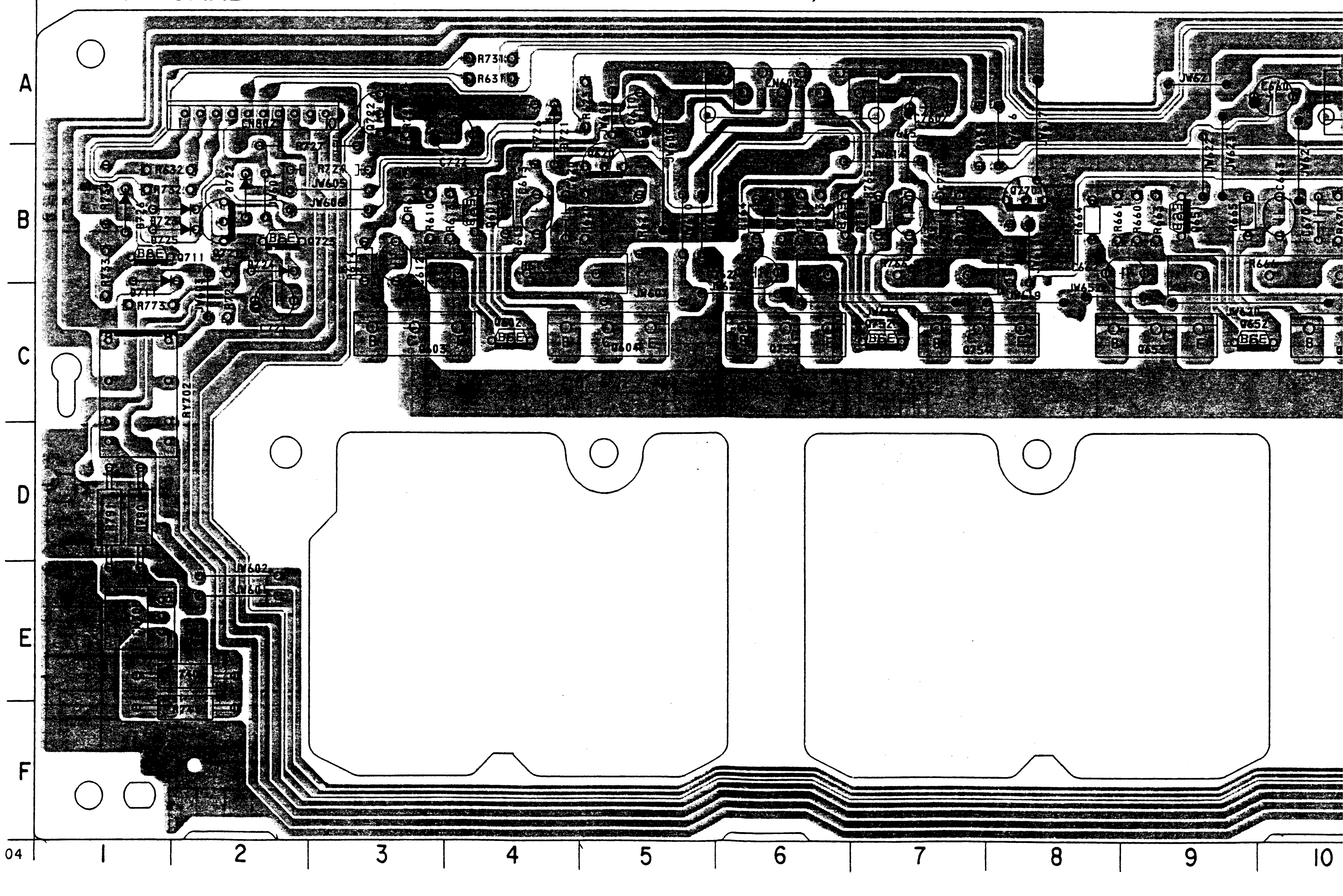
– Ref. No. MP-43 BOARD, MP-44 BOARD, SP-37 BOARD : 6,000 series –

MP–44 BOARD


CN301
JW106
C702
C703
R603
C603
JW105
C604
C753
R753
R743
C701
R702
R705
C705
C605
R725
JW109
R704
1-663-363-11
CN601
CN701

MP–43 BOARD

MP-43 BOARD	
CN602	A-6
CN702	A-11
CN703	A-14
CN704	A-16
CN705	E-1
CN801	E-17
CN802	A-2
D711	C-1
D721	A-4
D722	B-2
D723	B-2
D724	B-2
D725	B-2
D726	B-1
D802	C-17
D805	E-14
D818	C-17
D820	A-17
Q601	B-4
Q602	C-4
Q603	C-3
Q604	C-5
Q610	B-15
Q620	B-5
Q651	B-9
Q652	C-9
Q653	C-9
Q654	C-10
Q670	B-10
Q701	B-12
Q702	C-12
Q703	C-11
Q704	C-13
Q710	B-16
Q711	B-1
Q720	B-13
Q721	B-2
Q722	A-3
Q723	B-2
Q751	B-6
Q752	C-7
Q753	C-6
Q754	C-7
Q770	B-8
Q803	E-14
Q809	F-14


A
B
C
D
E
F
04
1
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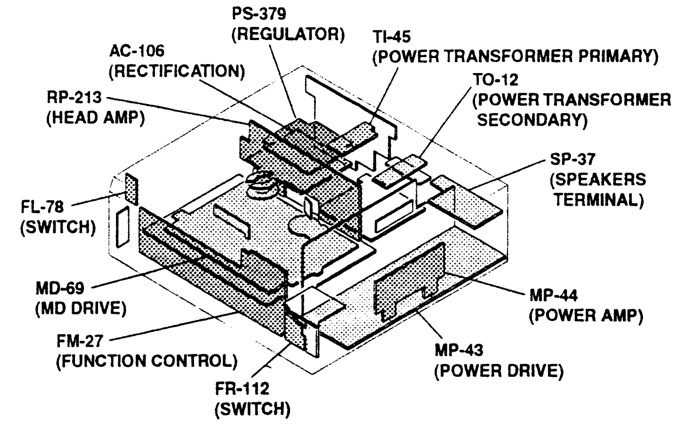
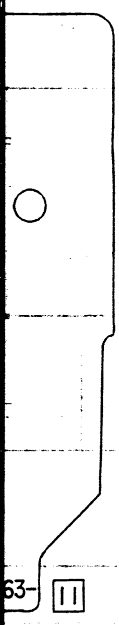
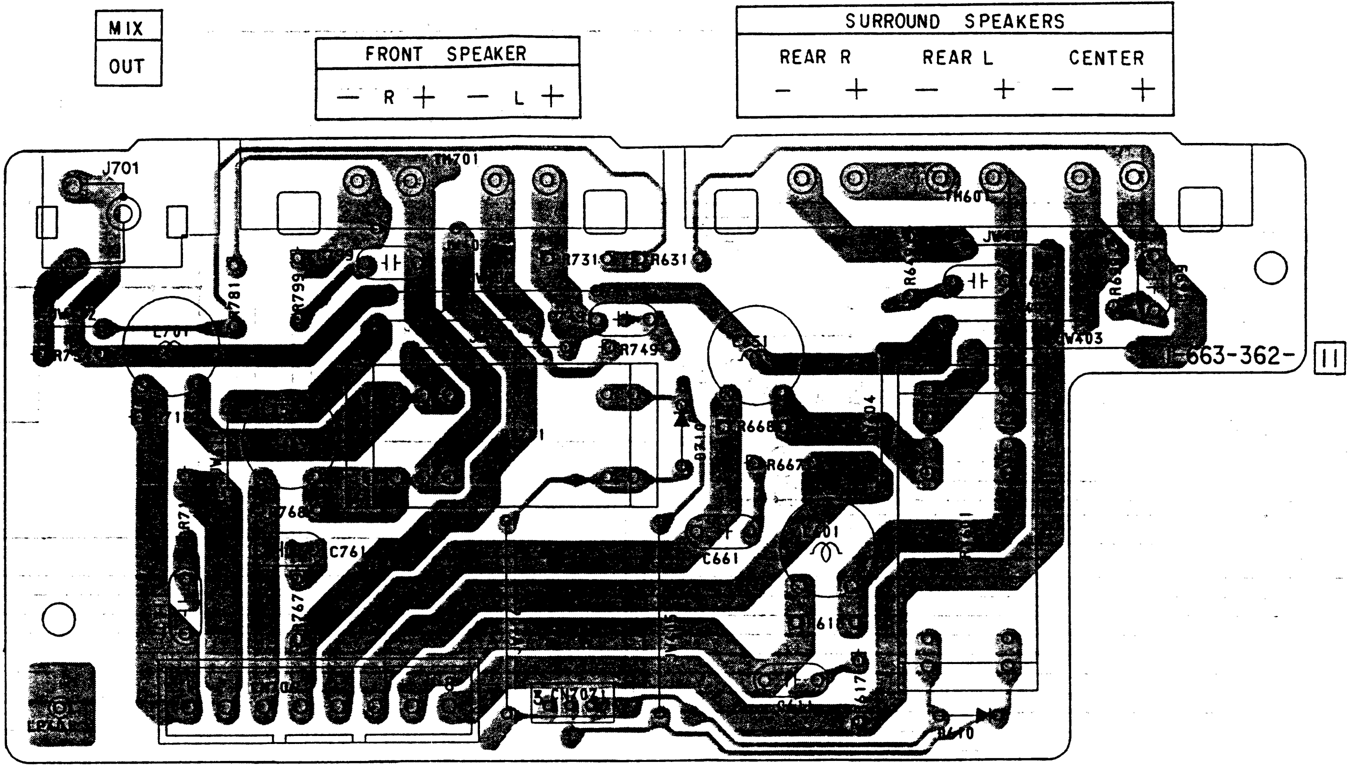
3
4
5
6
7
8
9
10
CN802
R731
R63
R732
Q711
R773
RY702
JW602
JW603
JW605
JW606
Q603
Q604
Q651
Q652
BBE

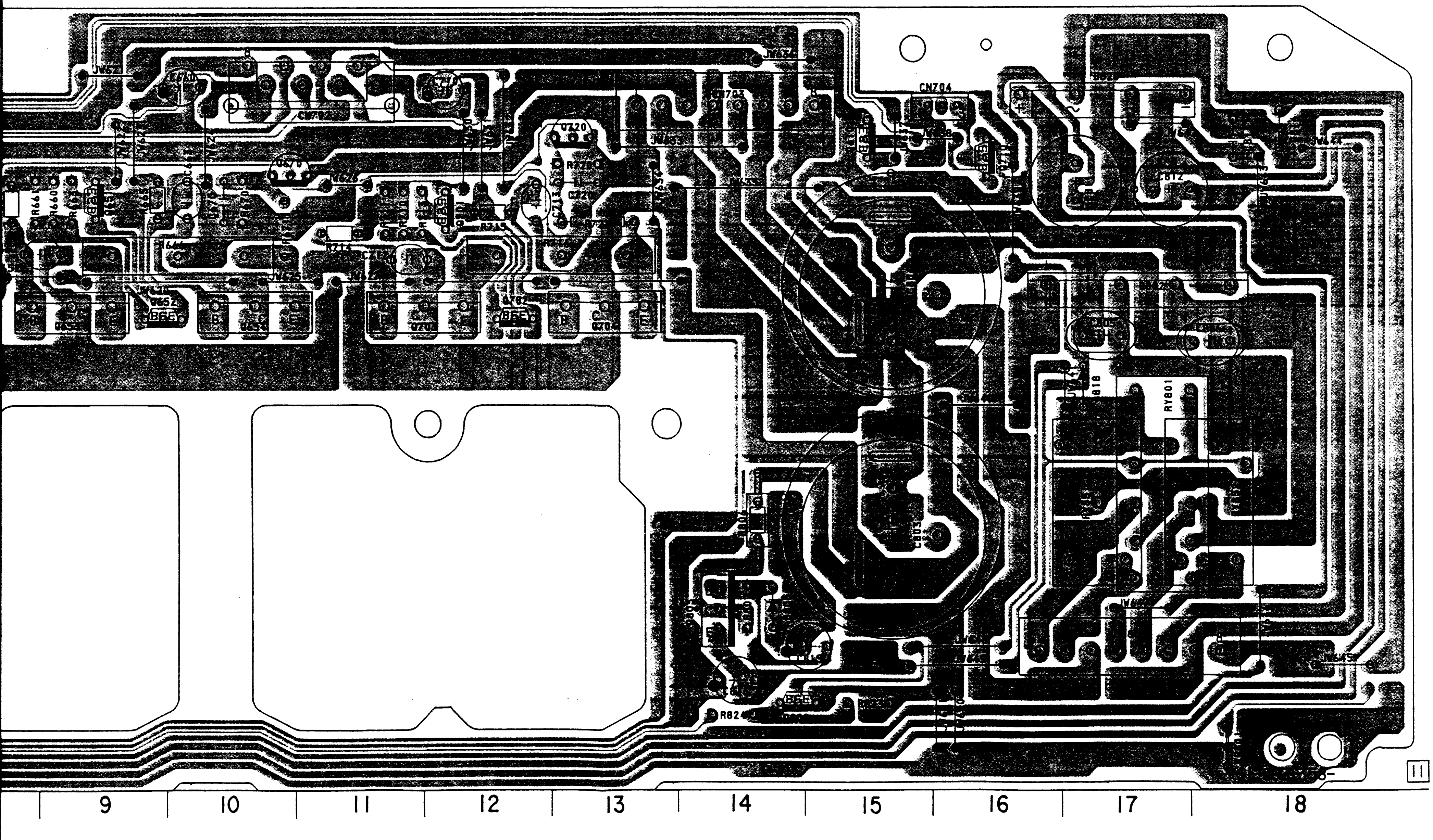

PS-379
(REGULATOR)
TI-45
(POWER TRANSFORMER PRIMARY)
AC-106
(RECTIFICATION)
TO-12
(POWER TRANSFORMER
SECONDARY)
RP-213
(HEAD AMP)
SP-37
(SPEAKERS
TERMINAL)
FL-78
(SWITCH)
MD-69
(MD DRIVE)
MP-44
(POWER AMP)
FM-27
(FUNCTION CONTROL)
MP-43
(POWER DRIVE)
FR-112
(SWITCH)

- There are few cases that the part isn't mounted in this model is printed on this diagram.



SP–37 BOARD


MIX
OUT
FRONT SPEAKER
− R + − L +
SURROUND SPEAKERS
REAR R
REAR L
CENTER
− + − + − +
J701
TH701
TH601
R781
R799
R731
R631
R749
R668
R667
C761
C661
R610
663-362-
11


CN704
RY801
R824
11
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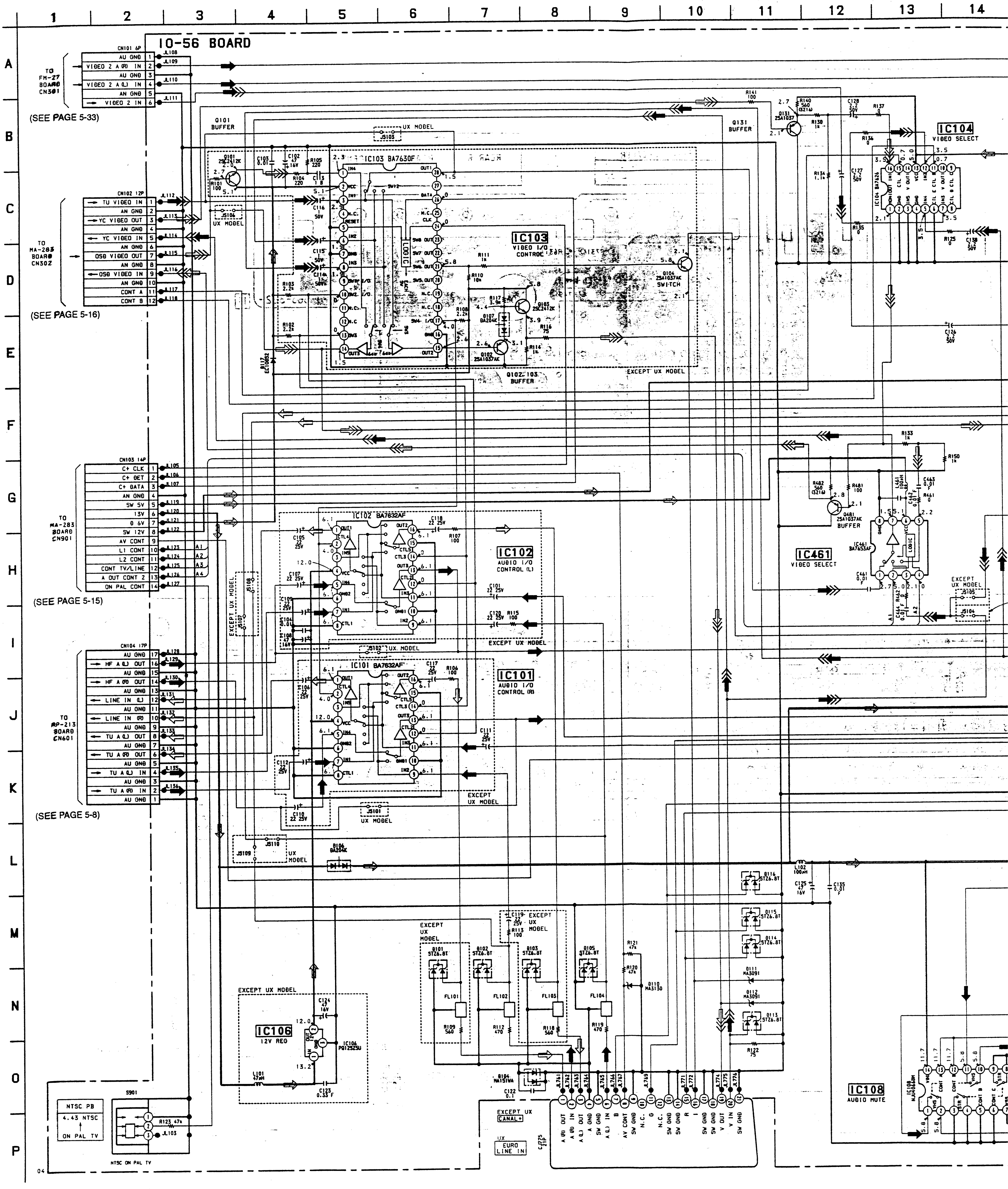
18

IO-56 (VIDEO/AUDIO/CANAL+ INPUT/OUTPUT) RF-43 (RF MODULATOR) SCHEMATIC DIAGRAMS

– Ref. No. IO-56 BOARD, RF-43 BOARD : 7,000 series –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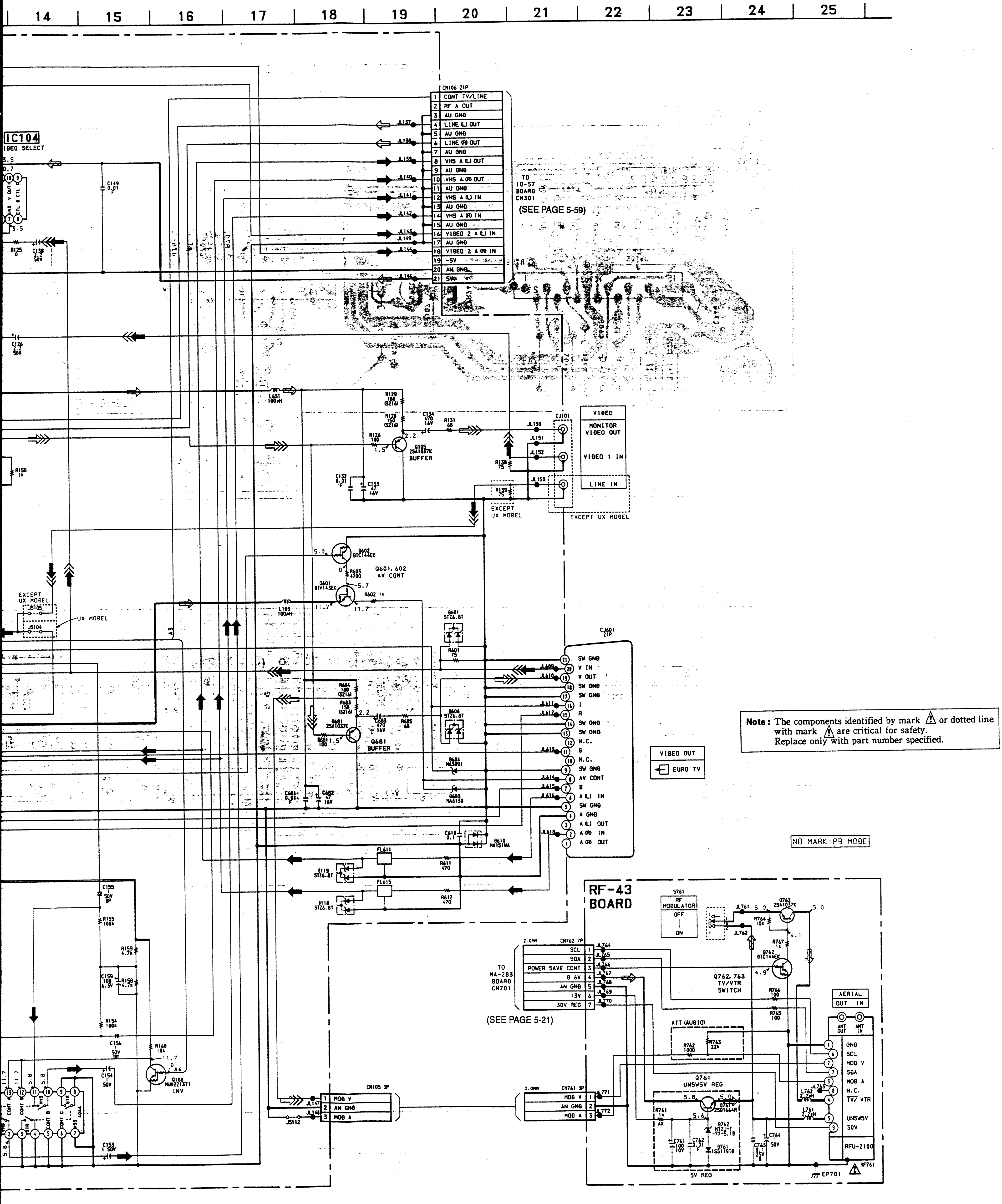
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
IO-56 BOARD
CN101 6P
AU GND
VIDEO 2 A (R) IN
AU GND
VIDEO 2 A (L) IN
AN GND
VIDEO 2 IN
TO FM-27 BOARD CN301
(SEE PAGE 5-33)
CN102 12P
TU VIDEO IN
AN GND
YC VIDEO OUT
AN GND
YC VIDEO IN
AN GND
OSD VIDEO OUT
AN GND
OSD VIDEO IN
AN GND
CONT A
CONT B
TO MA-283 BOARD CN302
(SEE PAGE 5-16)
CN103 14P
C+ CLK
C+ DET
C+ DATA
AN GND
SW 5V
13V
D 6V
SW 12V
AV CONT
L1 CONT
L2 CONT
CONT TV/LINE
A OUT CONT 2
ON PAL CONT
TO MA-283 BOARD CN901
(SEE PAGE 5-15)
CN104 17P
AU GND
HF A (L) OUT
HF A (R) OUT
LINE IN (L)
LINE IN (R)
TU A (L) OUT
TU A (R) OUT
TU A (L) IN
TU A (R) IN
TO RP-213 BOARD CN601
(SEE PAGE 5-8)
Q101 BUFFER
UX MODEL
IC103 BA7630F
IC103 VIDEO I/O CONTROL
Q104 2SA1037AK SWITCH
Q102, 103 BUFFER
EXCEPT UX MODEL
Q131 BUFFER
IC104 VIDEO SELECT
IC102 BA7632AF
IC102 AUDIO I/O CONTROL (L)
IC101 BA7632AF
IC101 AUDIO I/O CONTROL (R)
IC461 VIDEO SELECT
Q481 2SA1037AK BUFFER
IC461 BA7653AF
IC106 12V REG
IC106 PQ12SZ5U
S901
NTSC PB
4.43 NTSC
ON PAL TV
NTSC ON PAL TV
D104 BA204K
FL101
FL102
FL103
FL104
EXCEPT UX CANAL+
UX EURO LINE IN
CJ775 21P
A (R) OUT
A (R) OUT
A (L) OUT
A GND
A (L) IN
B
SW GND
AV CONT
SW GND
G
N.C.
SW GND
R
I
SW GND
SW GND
V OUT
V IN
SW GND
IC108 AUDIO MUTE
IC108 NJM2068M

● **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡≫	➡
PB			⇨≫	⇨

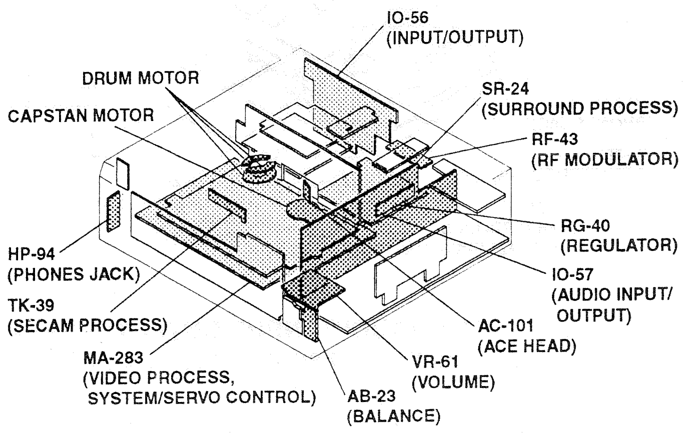

14
15
16
17
18
19
20
21
22
23
24
25
IC104
VIDEO SELECT
CN106 21P
1 CONT TV/LINE
2 RF A OUT
3 AU GND
4 LINE (L) OUT
5 AU GND
6 LINE (R) OUT
7 AU GND
8 VHS A (L) OUT
9 AU GND
10 VHS A (R) OUT
11 AU GND
12 VHS A (L) IN
13 AU GND
14 VHS A (R) IN
15 AU GND
16 VIDEO 2 A (L) IN
17 AU GND
18 VIDEO 2 A (R) IN
19 -5V
20 AN GND
21 SW
TO 10-57 BOARD CN301
(SEE PAGE 5-59)
Q105 2SA1037K BUFFER
CJ101
VIDEO
MONITOR VIDEO OUT
VIDEO 1 IN
LINE IN
EXCEPT UX MODEL
Q602 DTC144EK
Q601, 602 AV CONT
Q601 DTA143EK
EXCEPT UX MODEL
UX MODEL
Q681 2SA1037K
Q681 BUFFER
CJ601 21P
21 SW GND
20 V IN
19 V OUT
18 SW GND
17 SW GND
16 I
15 R
14 SW GND
13 SW GND
12 N.C.
11 G
10 N.C.
9 SW GND
8 AV CONT
7 B
6 A (L) IN
5 SW GND
4 A GND
3 A (L) OUT
2 A (R) IN
1 A (R) OUT
VIDEO OUT
EURO TV
NO MARK:PB MODE
Q108 MUN2213T1 INV
CN105 3P
1 MOD V
2 AN GND
3 MOD A
RF-43 BOARD
S761 RF MODULATOR OFF ON
Q763 2SA1037K
Q762 DTC144EK
Q762, 763 TV/VTR SWITCH
CN762 7P
1 SCL
2 SDA
3 POWER SAVE CONT
4 D 6V
5 AN GND
6 13V
7 30V REG
TO MA-283 BOARD CN701
(SEE PAGE 5-21)
ATT (AUDIO)
Q761 UNSWSV REG
CN761 3P
1 MOD V
2 AN GND
3 MOD A
5V REG
AERIAL OUT IN
ANT OUT
ANT IN
1 GND
6 SCL
2 MOD V
7 SDA
3 MOD A
8 N.C.
4 TV/VTR
5 UNSWSV
9 30V
RFU-2100
EP701
RF761

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

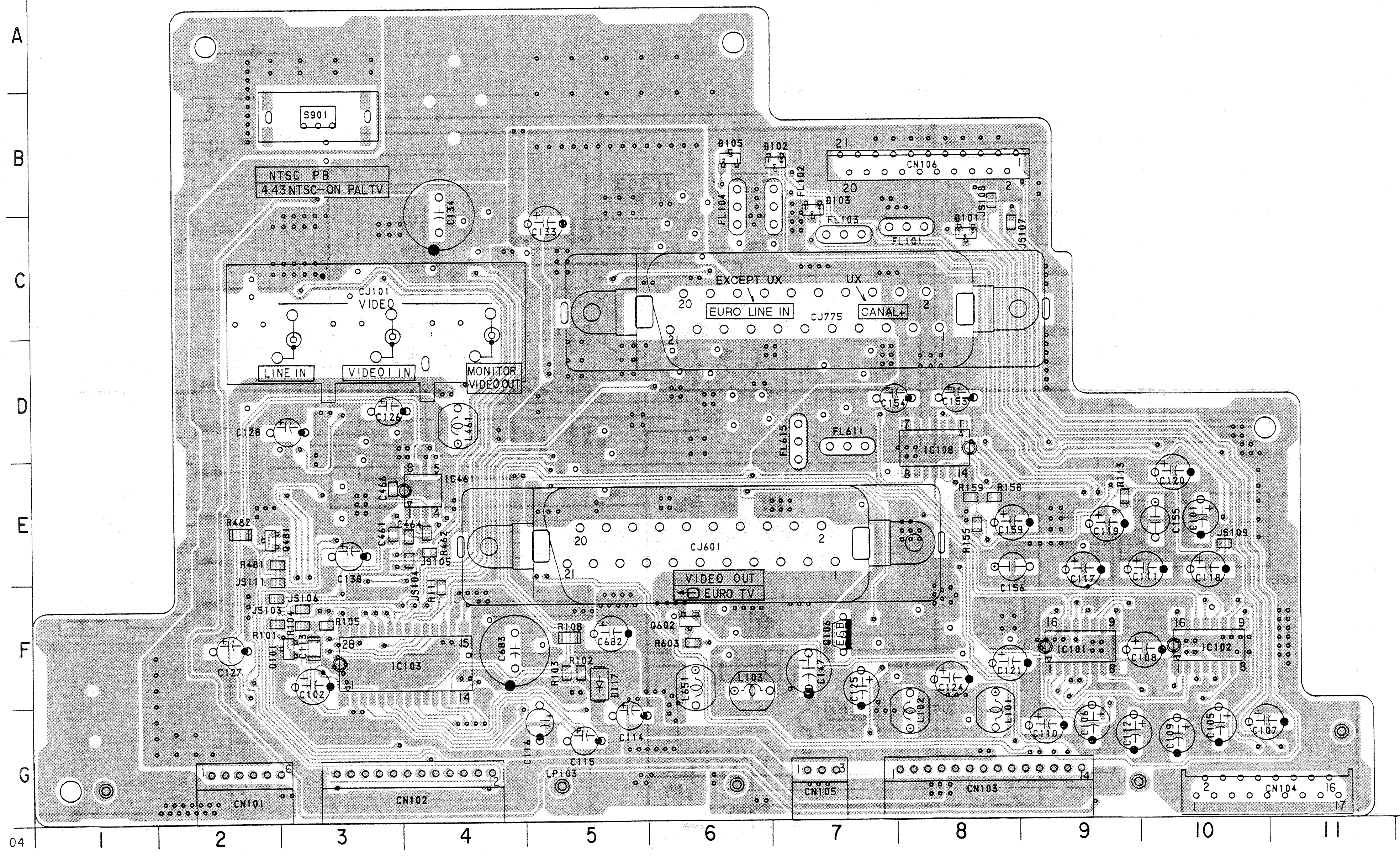
IO-56 (VIDEO/AUDIO/CANAL+ INPUT/OUTPUT) RF-43 (RF MODULATOR) PRINTED WIRING BOARDS

– Ref. No. IO-56 BOARD, RF-43 BOARD : 7,000 series –

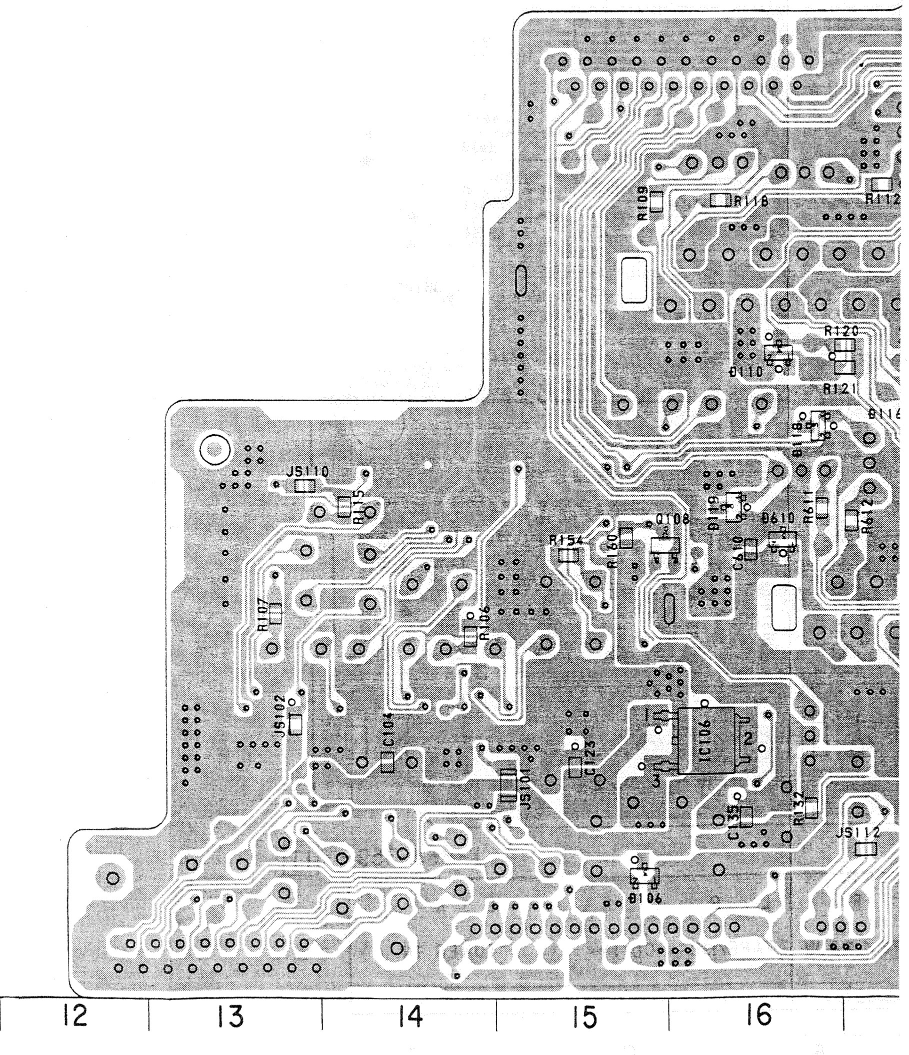
- There are few cases that t
  this model is printed on t


IO-56
(INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24
(SURROUND PROCESS)
RF-43
(RF MODULATOR)
RG-40
(REGULATOR)
HP-94
(PHONES JACK)
IO-57
(AUDIO INPUT/
OUTPUT)
TK-39
(SECAM PROCESS)
AC-101
(ACE HEAD)
MA-283
(VIDEO PROCESS,
SYSTEM/SERVO CONTROL)
VR-61
(VOLUME)
AB-23
(BALANCE)

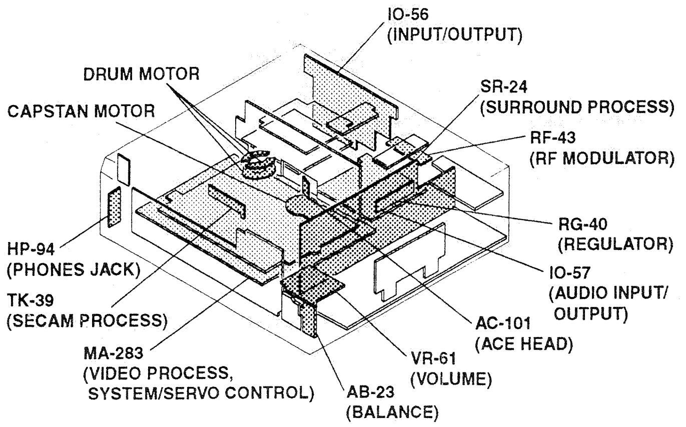
IO-56 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
S901
NTSC PB
4.43NTSC-ON PALTV
C134
C133
B105
B102
FL104
FL102
B103
FL103
CN106
21
20
FL101
B101
JS108
JS107
CJ101
VIDEO
LINE IN
VIDEO1 IN
MONITOR VIDEO OUT
EXCEPT UX
UX
EURO LINE IN
CJ775
CANAL+
C128
C126
C441
C154
C153
FL615
FL611
IC108
C466
IC461
C464
C461
R462
R482
Q481
R481
C138
JS111
JS106
JS103
JS104
JS105
R111
R101
R105
Q101
C127
C102
IC103
CJ601
VIDEO OUT
EURO TV
R108
C683
C682
Q602
R603
R103
R102
B117
C114
C116
C115
LP103
L651
L103
C147
Q106
C125
C124
L102
L101
R159
R158
R155
R113
C155
C120
C121
C119
C117
C111
C118
C156
JS109
IC101
IC102
C108
C110
C106
C112
C109
C105
C107
CN101
CN102
CN105
CN103
CN104
04
1
2
3
4
5
6
7
8
9
10
11

IO-56 BOARD (CONDUCTOR SIDE)

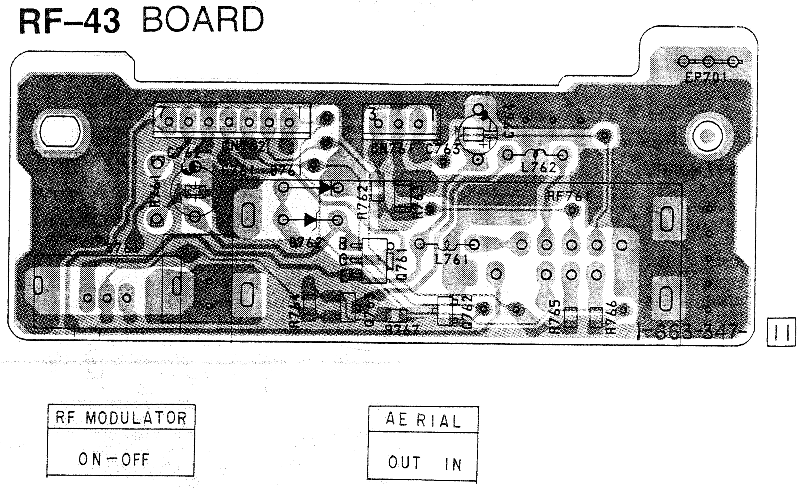

R109
R116
R112
R120
R121
B110
B118
JS110
R115
Q108
B610
C610
R154
R107
R106
JS102
C104
JS101
C123
IC106
C135
R132
JS112
B106
12
13
14
15
16

BOARDS

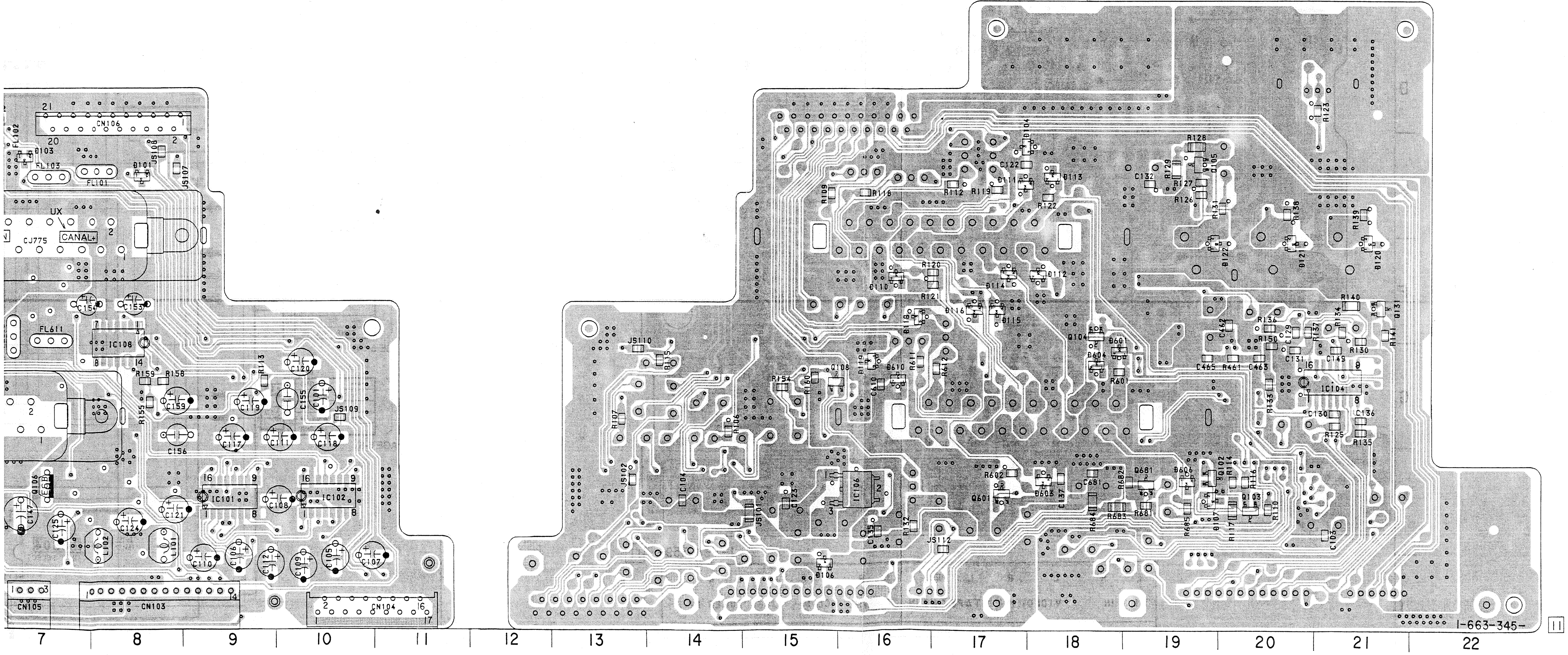

IO-56
(INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24
(SURROUND PROCESS)
RF-43
(RF MODULATOR)
RG-40
(REGULATOR)
IO-57
(AUDIO INPUT/
OUTPUT)
HP-94
(PHONES JACK)
TK-39
(SECAM PROCESS)
AC-101
(ACE HEAD)
MA-283
(VIDEO PROCESS,
SYSTEM/SERVO CONTROL)
VR-61
(VOLUME)
AB-23
(BALANCE)

- There are few cases that the part isn't mounted in this model is printed on this diagram.

RF–43 BOARD


FP701
CN762
C763
L762
RF761
L761
D761
R762
R765
R766
R767
1-663-347-
11
RF MODULATOR
ON–OFF
AE RIAL
OUT IN

IO–56 BOARD (CONDUCTOR SIDE)


CN106
CN105
CN103
CN104
CJ775
CANAL+
UX
FL101
FL102
FL103
FL611
IC101
IC102
IC104
IC106
IC108
JS109
JS110
JS112
1-663-345-
11
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

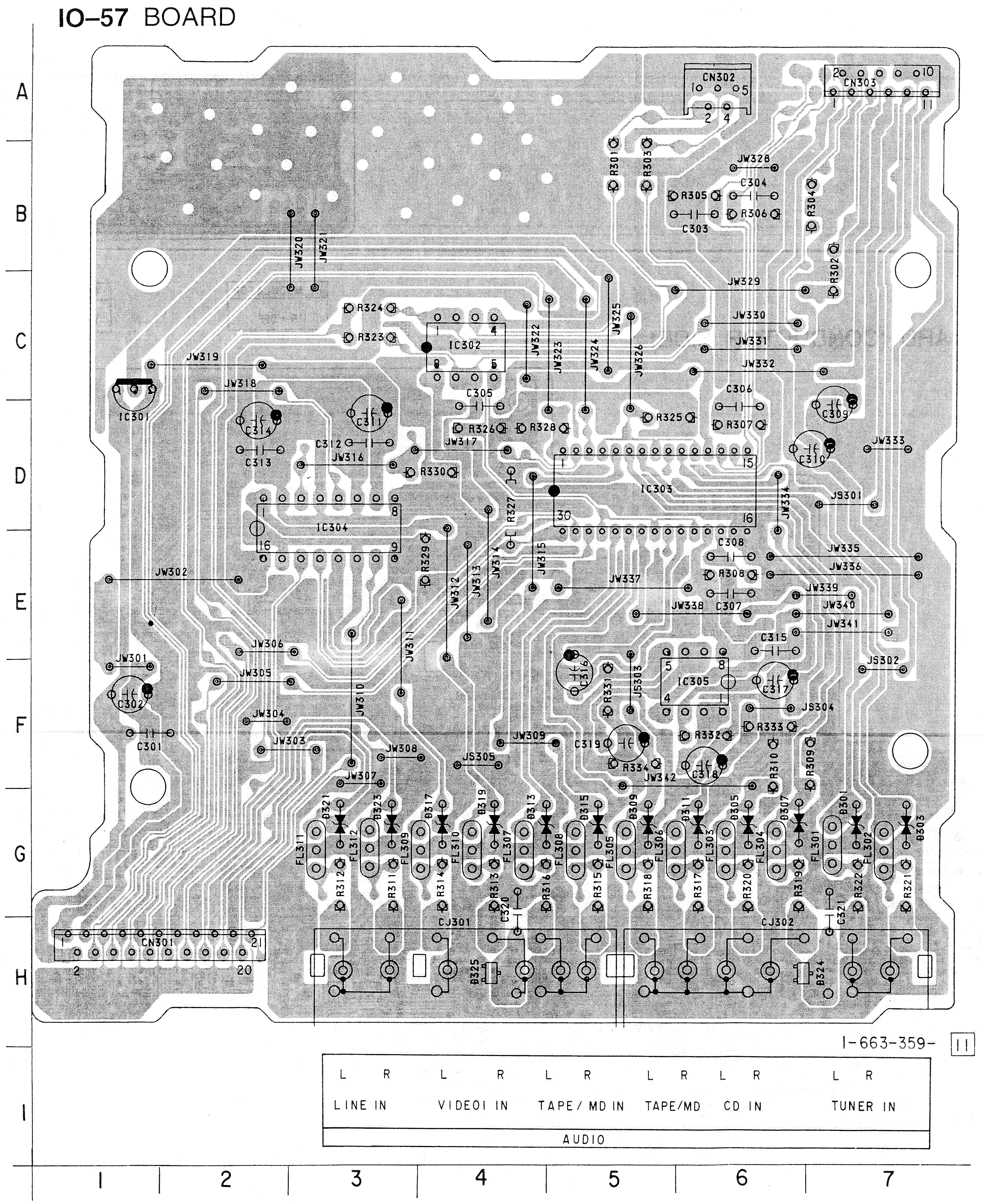
IO-56 BOARD	
CN101	G-2
CN102	G-4
CN103	G-8
CN104	G-11
CN105	G-7
CN106	B-8
D101	C-8
D102	B-7
D103	B-7
D104	B-18
D105	B-6
D106	G-15
D107	F-19
D110	D-16
D111	C-17
D112	D-18
D113	C-18
D114	D-17
D115	D-17
D116	D-17
D117	F-5
D118	D-16
D119	E-18
D601	D-18
D603	F-18
D604	E-18
D606	F-19
D610	E-16
IC101	F-9
IC102	F-10
IC103	F-4
IC104	E-21
IC106	F-16
IC108	D-8
IC461	E-4
Q101	F-3
Q102	F-19
Q103	F-20
Q104	D-18
Q105	C-19
Q108	E-16
Q131	D-21
Q481	E-2
Q601	F-17
Q602	F-6
Q681	F-19

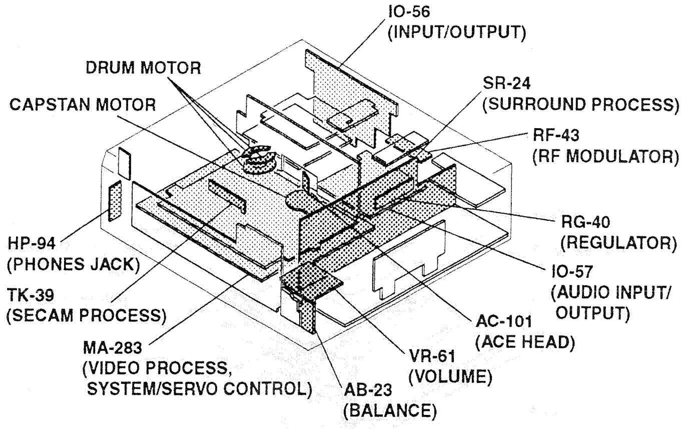
IO-57 (AUDIO INPUT/OUTPUT) PRINTED WIRING BOARD

– Ref. No. IO-57 BOARD : 7,000 series –

- There are few cases that the part isn't mounted in this model is printed on this diagram.

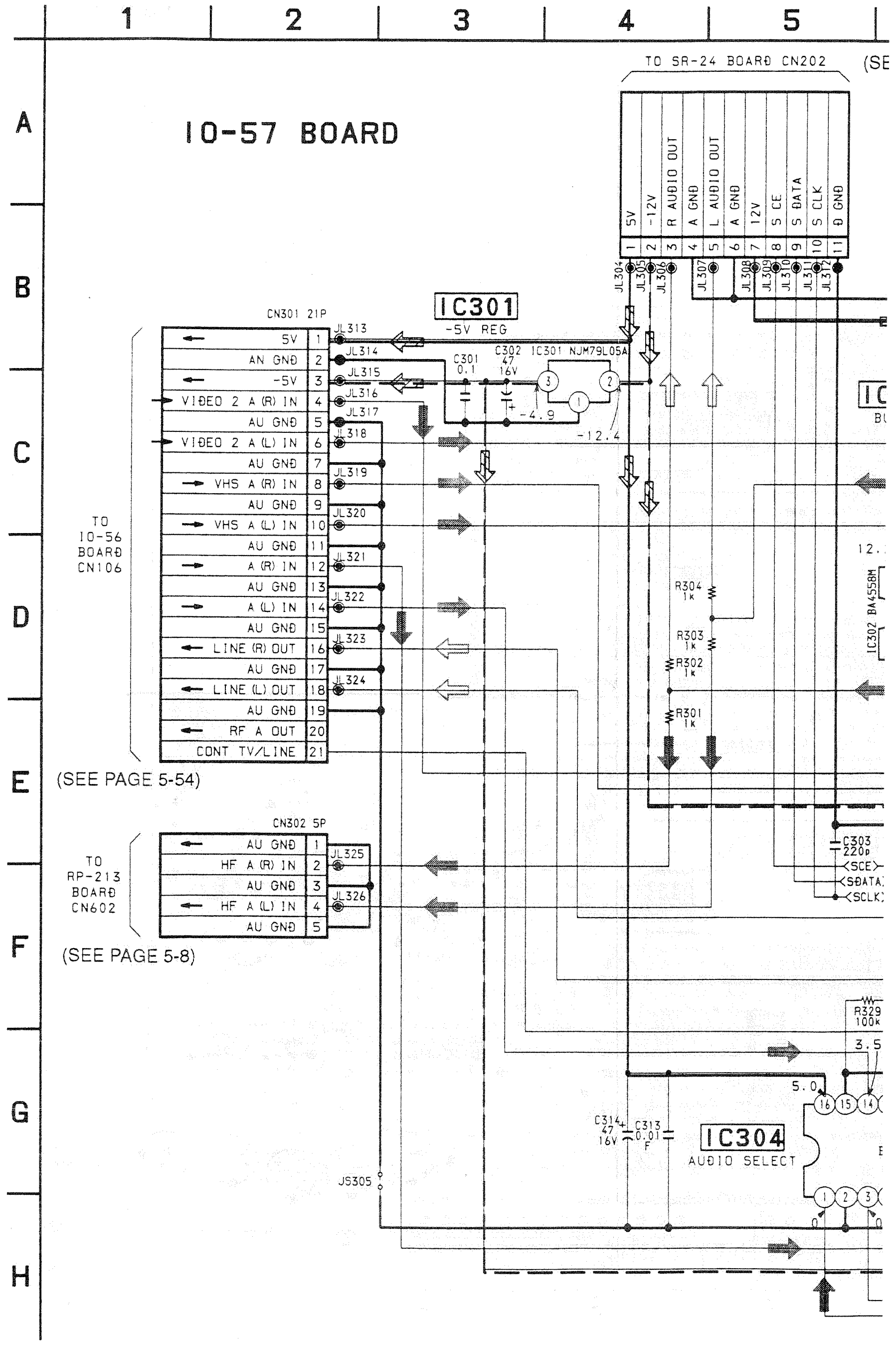
IO-57 BOARD	
CN301	H-1
CN302	A-6
CN303	A-7
IC301	C-1
IC302	C-4
IC303	D-5
IC304	D-3


IO–57 BOARD
A
B
C
D
E
F
G
H
I
CN302
CN303
IC301
IC302
IC303
IC304
IC305
CN301
CJ301
CJ302
1-663-359- 11
L R L R L R L R L R L R
LINE IN
VIDEO1 IN
TAPE/ MD IN
TAPE/MD
CD IN
TUNER IN
AUDIO
1
2
3
4
5
6
7

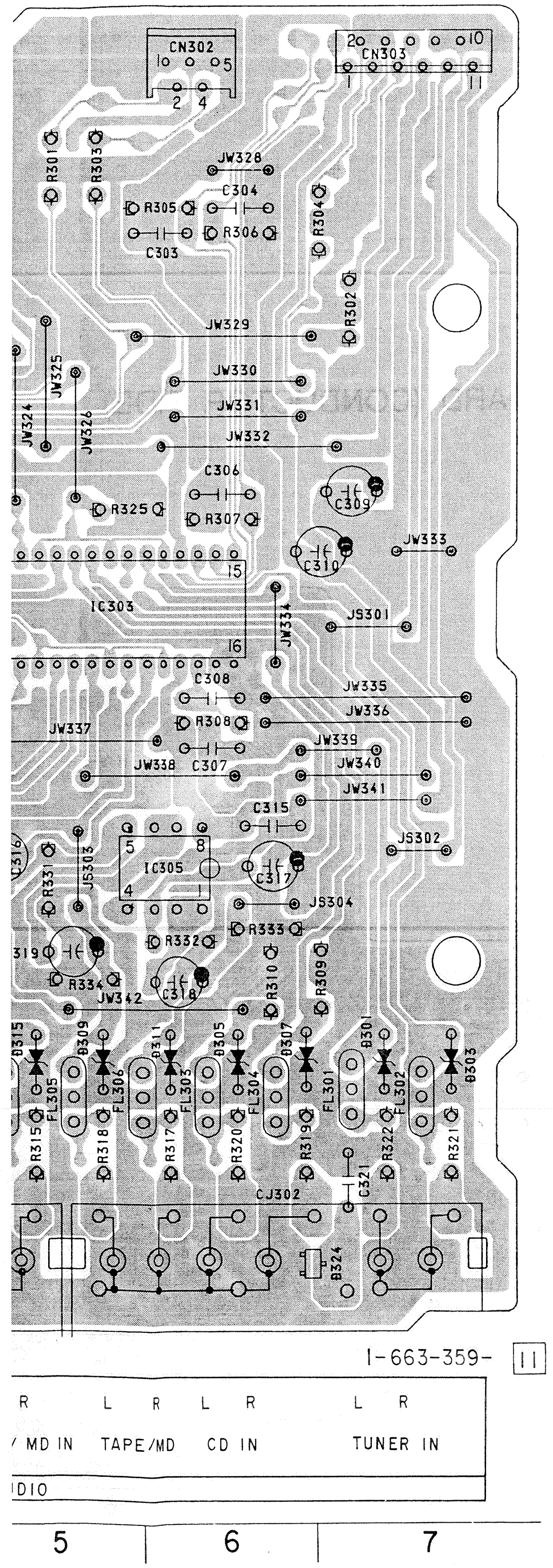

IO-56 (INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24 (SURROUND PROCESS)
RF-43 (RF MODULATOR)
RG-40 (REGULATOR)
HP-94 (PHONES JACK)
TK-39 (SECAM PROCESS)
IO-57 (AUDIO INPUT/ OUTPUT)
MA-283 (VIDEO PROCESS, SYSTEM/SERVO CONTROL)
AC-101 (ACE HEAD)
VR-61 (VOLUME)
AB-23 (BALANCE)

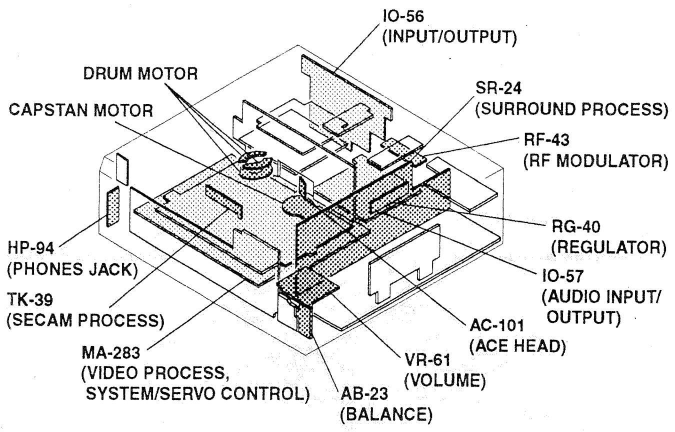
IO-57 (AUDIO INPUT/OUTPUT) SCHEMATIC DIAGRAM

– Ref. No. IO-57 BOARD : 7,000 series –


1
2
3
4
5
A
B
C
D
E
F
G
H
IO-57 BOARD
TO SR-24 BOARD CN202
5V
-12V
R AUDIO OUT
A GND
L AUDIO OUT
A GND
12V
S CE
S DATA
S CLK
D GND
IC301
-5V REG
IC301 NJM79L05A
CN301 21P
5V
AN GND
-5V
VIDEO 2 A (R) IN
AU GND
VIDEO 2 A (L) IN
AU GND
VHS A (R) IN
AU GND
VHS A (L) IN
AU GND
A (R) IN
AU GND
A (L) IN
AU GND
LINE (R) OUT
AU GND
LINE (L) OUT
AU GND
RF A OUT
CONT TV/LINE
TO IO-56 BOARD CN106
(SEE PAGE 5-54)
CN302 5P
AU GND
HF A (R) IN
AU GND
HF A (L) IN
AU GND
TO RP-213 BOARD CN602
(SEE PAGE 5-8)
IC304
AUDIO SELECT
IC302 BA4558M

- There are few cases that the part isn't mounted in this model is printed on this diagram.


CN302
CN303
JW328
C304
R305
R306
C303
R301
R303
R304
R302
JW329
JW330
JW331
JW332
JW324
JW325
JW326
C306
C309
R325
R307
C310
JW333
IC303
JS301
JW334
C308
JW335
JW336
R308
JW337
JW339
JW338
C307
JW340
JW341
C315
JS302
IC305
C317
JS304
R333
R332
R331
C318
JW342
R334
R310
R309
FL305
FL306
FL303
FL304
FL301
FL302
R318
R317
R320
R319
R322
R321
C321
CJ302
B324
1-663-359- 11
R L R L R L R
MD IN TAPE/MD CD IN TUNER IN
DIO
5
6
7

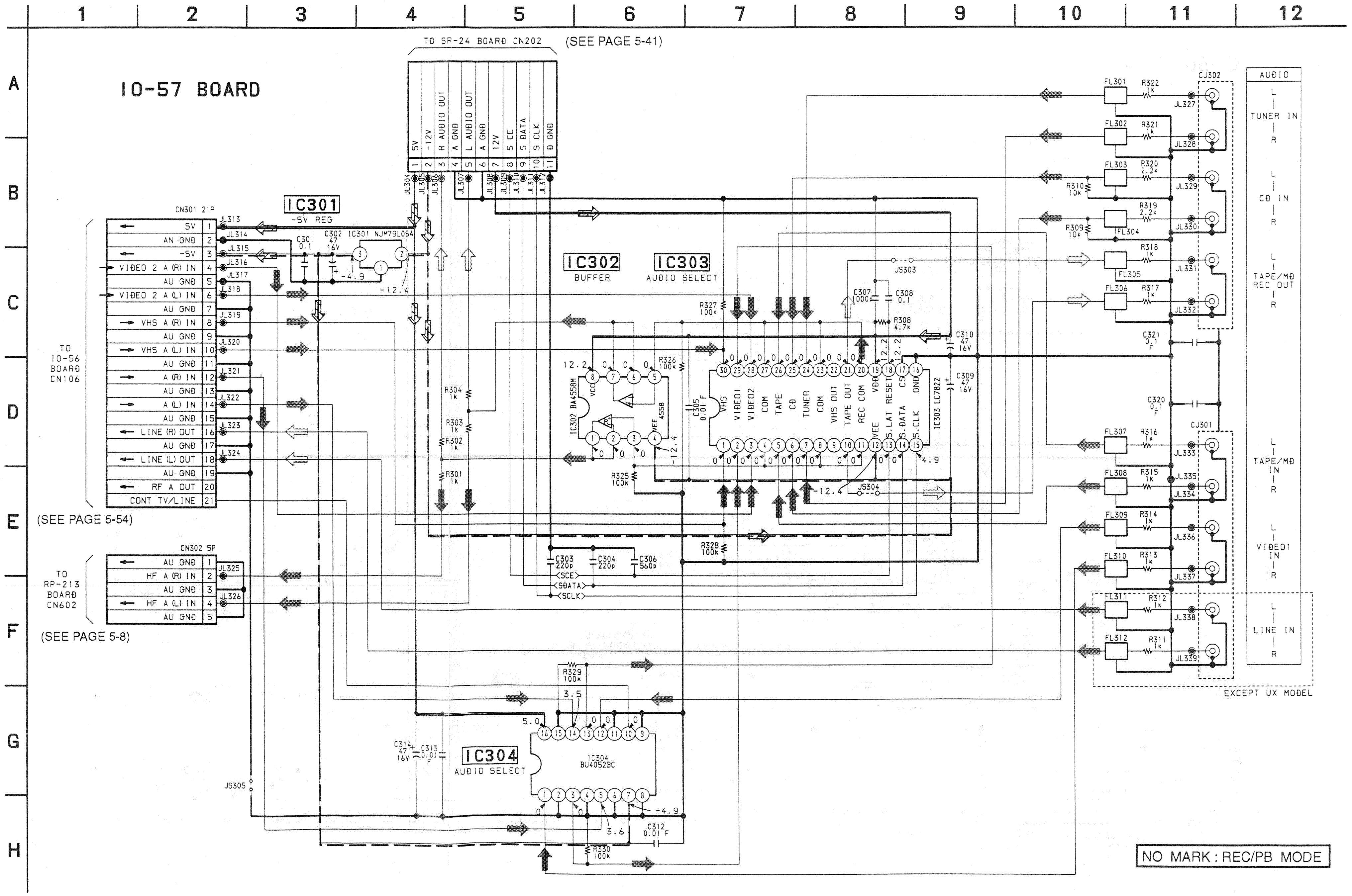

IO-56 (INPUT/OUTPUT)
DRUM MOTOR
CAPSTAN MOTOR
SR-24 (SURROUND PROCESS)
RF-43 (RF MODULATOR)
RG-40 (REGULATOR)
HP-94 (PHONES JACK)
IO-57 (AUDIO INPUT/ OUTPUT)
TK-39 (SECAM PROCESS)
AC-101 (ACE HEAD)
MA-283 (VIDEO PROCESS, SYSTEM/SERVO CONTROL)
VR-61 (VOLUME)
AB-23 (BALANCE)

● Signal path

	AUDIO Signal
REC	➡
PB	⇨

IO-57 (AUDIO INPUT/OUTPUT) SCHEMATIC DIAGRAM

– Ref. No. IO-57 BOARD : 7,000 series –

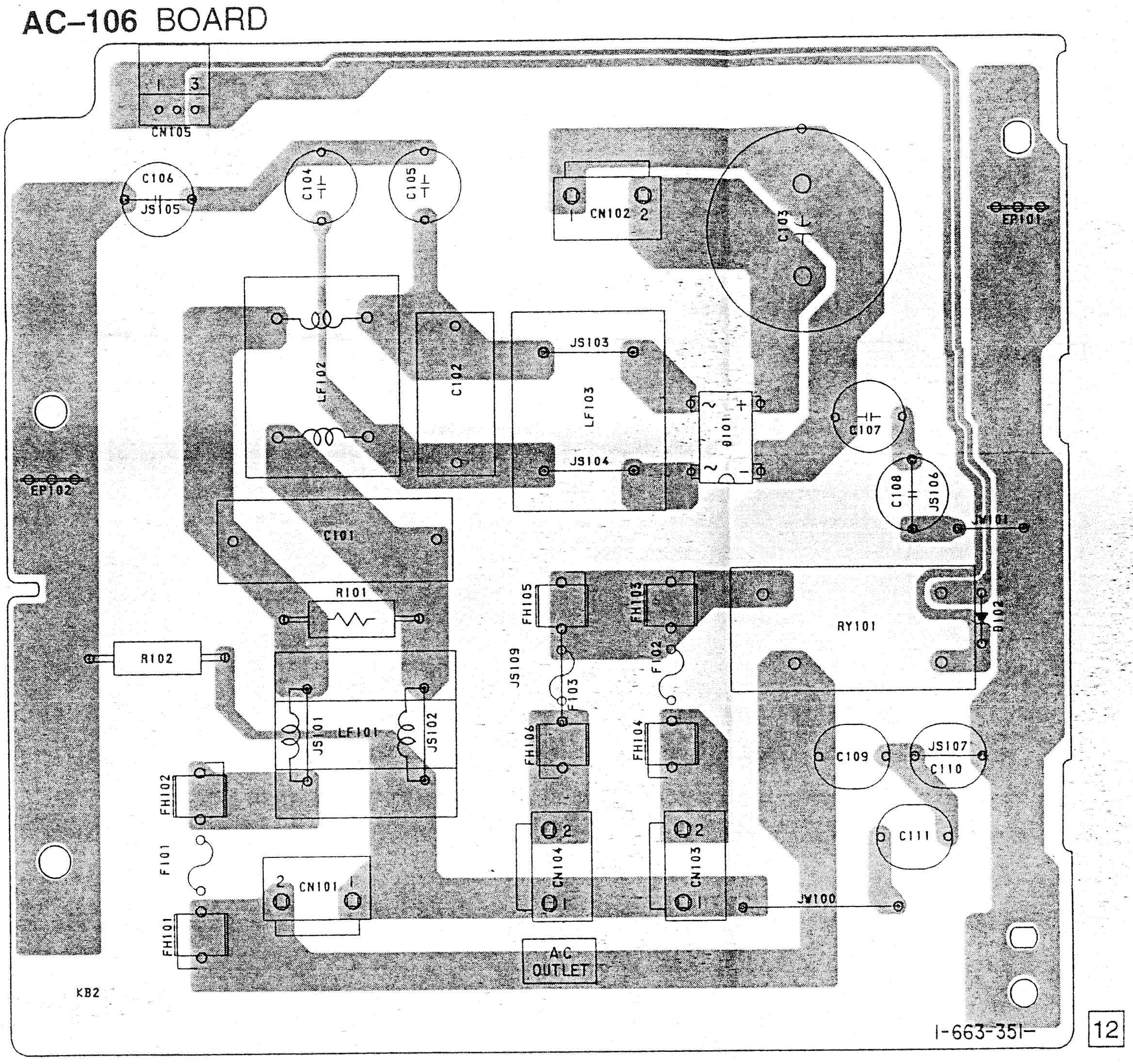

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
IO-57 BOARD
TO SR-24 BOARD CN202
(SEE PAGE 5-41)
5V
-12V
R AUDIO OUT
A GND
L AUDIO OUT
A GND
12V
S CE
S DATA
S CLK
D GND
IC301
-5V REG
IC301 NJM79L05A
IC302
BUFFER
IC302 BA4558N
IC303
AUDIO SELECT
IC303 LC7822
IC304
AUDIO SELECT
IC304 BU4052BC
CN301 21P
5V
AN GND
-5V
VIDEO 2 A (R) IN
AU GND
VIDEO 2 A (L) IN
AU GND
VHS A (R) IN
AU GND
VHS A (L) IN
AU GND
A (R) IN
AU GND
A (L) IN
AU GND
LINE (R) OUT
AU GND
LINE (L) OUT
AU GND
RF A OUT
CONT TV/LINE
TO IO-56 BOARD CN106
(SEE PAGE 5-54)
CN302 5P
AU GND
HF A (R) IN
AU GND
HF A (L) IN
AU GND
TO RP-213 BOARD CN602
(SEE PAGE 5-8)
VIDEO1
VIDEO2
COM
TAPE
CD
TUNER
COM
VHS OUT
TAPE OUT
REC COM
VDD
VEE
S.LAT
RESET
CS
S.DATA
S.CLK
GND
CJ302
CJ301
AUDIO
L TUNER IN R
L CD IN R
L TAPE/MD REC OUT R
L TAPE/MD IN R
L VIDEO1 IN R
L LINE IN R
EXCEPT UX MODEL
<SCE>
<SDATA>
<SCLK>
JS303
JS305
JS306
NO MARK : REC/PB MODE

AC-106 (RECTIFICATION) PS-379 (REGULATOR) TI-45 (POWER TRANSFORMER PRIMARY) TO-12 (POWER TRANSFORMER SECONDARY) PRINTED WIRING BOARDS

– Ref. No. AC-106 BOARD, PS-379 BOARD, TI-45 BOARD, TO-12 BOARD : 8,000 series –

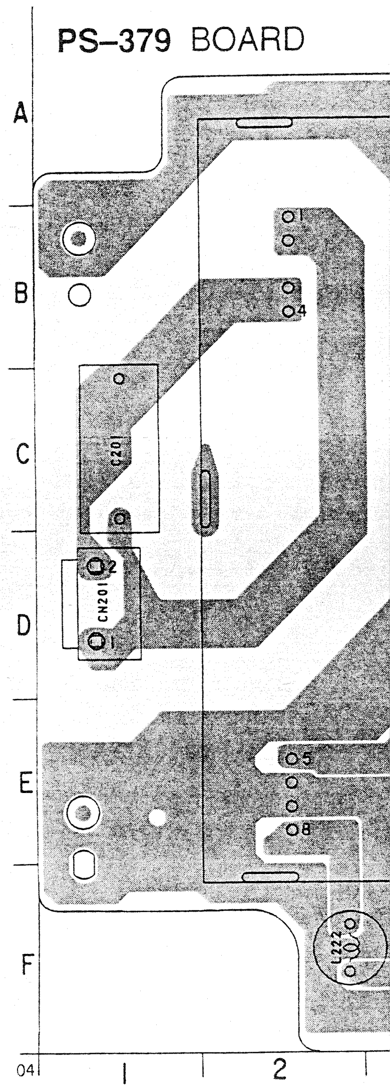
• There are few ca
this model is pri

AC–106 BOARD



1
3
CN105
C106
JS105
C104
C105
CN102
2
C103
EP101
LF102
C102
JS103
LF103
JS104
D101
C107
EP102
C101
C108
JS106
JW101
R101
FH105
FH103
RY101
D102
R102
JS109
F103
F102
JS101
LF101
JS102
FH106
FH104
C109
JS107
C110
FH102
C111
CN104
CN103
F101
2
CN101
1
JW100
FH101
AC OUTLET
KB2
1-663-351-
12

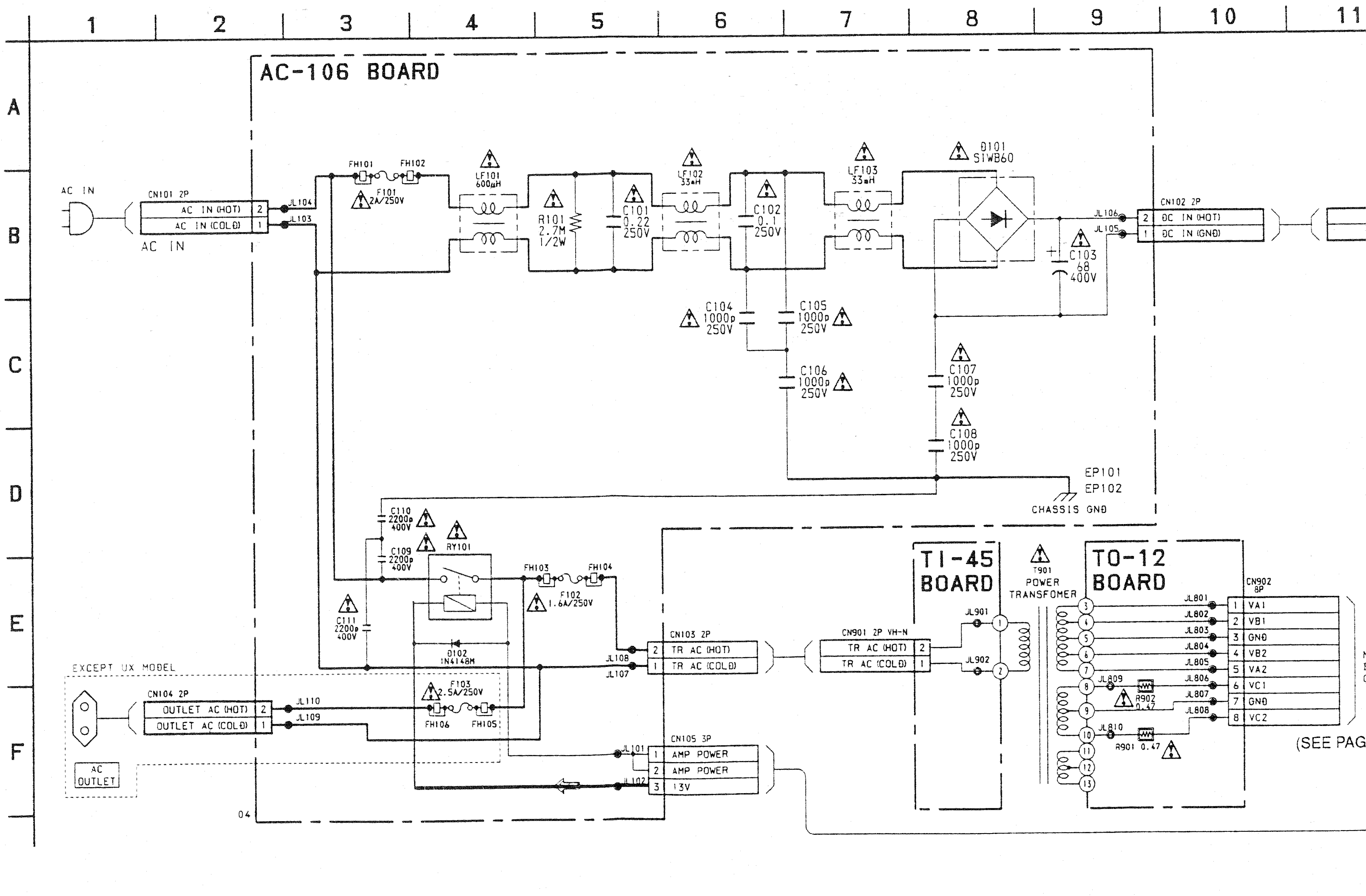
PS–379 BOARD



A
B
C
D
E
F
C201
CN201
2
1
4
5
8
L222
04
1
2

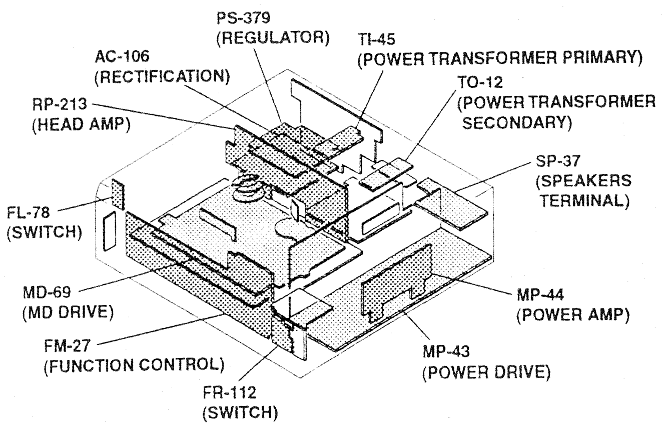
AC-106 (RECTIFICATION) PS-379 (REGULATOR) TI-45 (POWER TRANSFORMER PRIMARY) TO-12 (POWER TRANSFORMER SECONDARY) SCHEMATIC DIAGRAMS

– Ref. No. AC-106 BOARD, PS-379 BOARD, TI-45 BOARD, TO-12 BOARD : 8,000 series –



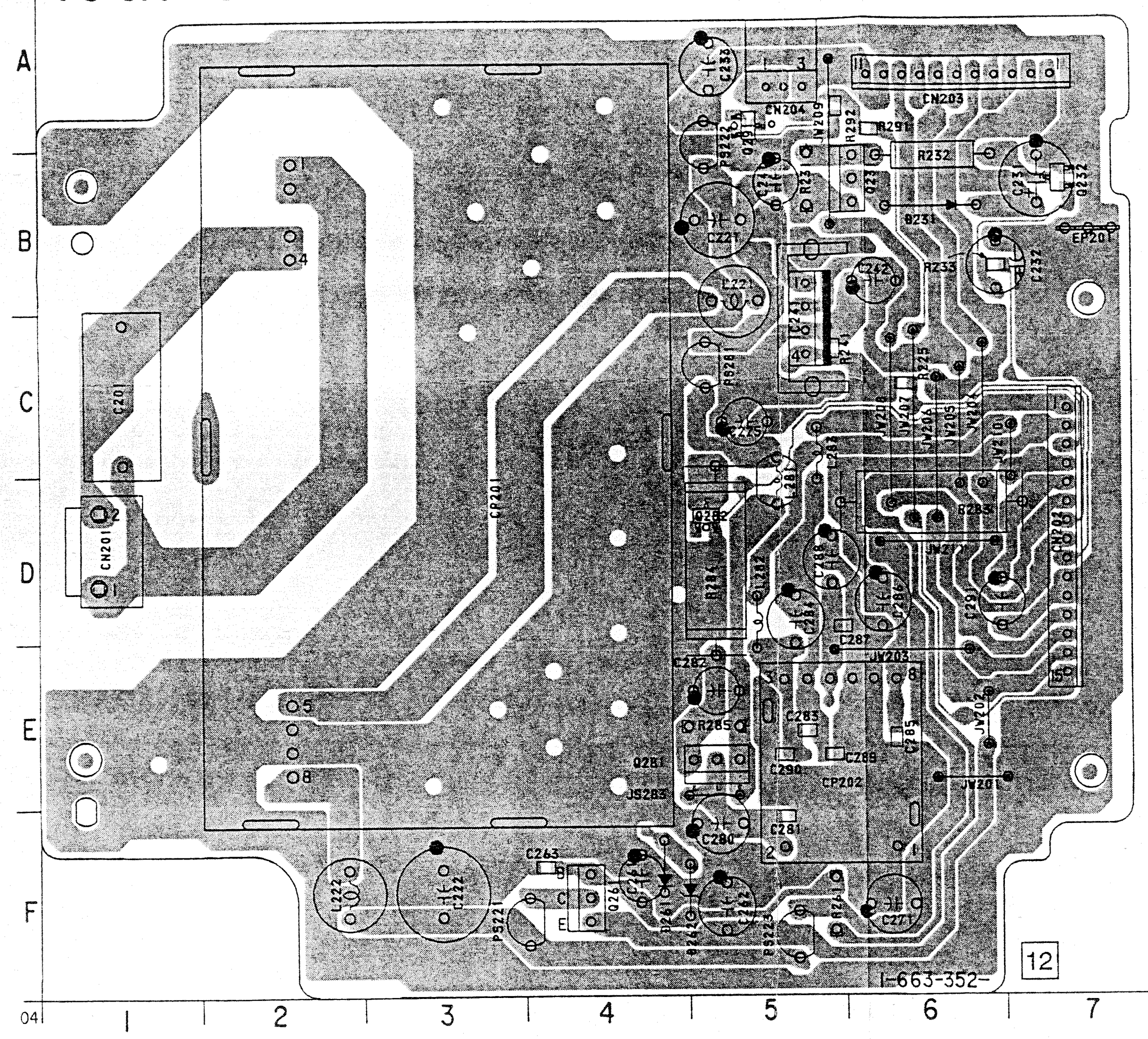
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
AC-106 BOARD
AC IN
CN101 2P
AC IN (HOT) 2
AC IN (COLD) 1
AC IN
JL104
JL103
FH101
FH102
F101 2A/250V
LF101 600µH
R101 2.7M 1/2W
C101 0.22 250V
LF102 33mH
C102 0.1 250V
LF103 33mH
D101 S1WB60
C103 68 400V
JL106
JL105
CN102 2P
2 DC IN (HOT)
1 DC IN (GND)
C104 1000p 250V
C105 1000p 250V
C106 1000p 250V
C107 1000p 250V
C108 1000p 250V
EP101
EP102
CHASSIS GND
C110 2200p 400V
C109 2200p 400V
RY101
FH103
FH104
F102 1.6A/250V
C111 2200p 400V
D102 1N4148M
CN103 2P
2 TR AC (HOT)
1 TR AC (COLD)
JL108
JL107
EXCEPT UX MODEL
CN104 2P
OUTLET AC (HOT) 2
OUTLET AC (COLD) 1
JL110
JL109
F103 2.5A/250V
FH106
FH105
AC OUTLET
CN105 3P
JL101
1 AMP POWER
2 AMP POWER
JL102
3 13V
04
TI-45 BOARD
CN901 2P VH-N
TR AC (HOT) 2
TR AC (COLD) 1
JL901
JL902
T901 POWER TRANSFOMER
TO-12 BOARD
JL801
JL802
JL803
JL804
JL805
JL806
JL807
JL808
JL809
JL810
R902 0.47
R901 0.47
CN902 8P
1 VA1
2 VB1
3 GND
4 VB2
5 VA2
6 VC1
7 GND
8 VC2
(SEE PAG

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.


PS-379
(REGULATOR)
TI-45
(POWER TRANSFORMER PRIMARY)
AC-106
(RECTIFICATION)
TO-12
(POWER TRANSFORMER
SECONDARY)
RP-213
(HEAD AMP)
SP-37
(SPEAKERS
TERMINAL)
FL-78
(SWITCH)
MD-69
(MD DRIVE)
MP-44
(POWER AMP)
FM-27
(FUNCTION CONTROL)
MP-43
(POWER DRIVE)
FR-112
(SWITCH)

- There are few cases that the part isn't mounted in this model is printed on this diagram.

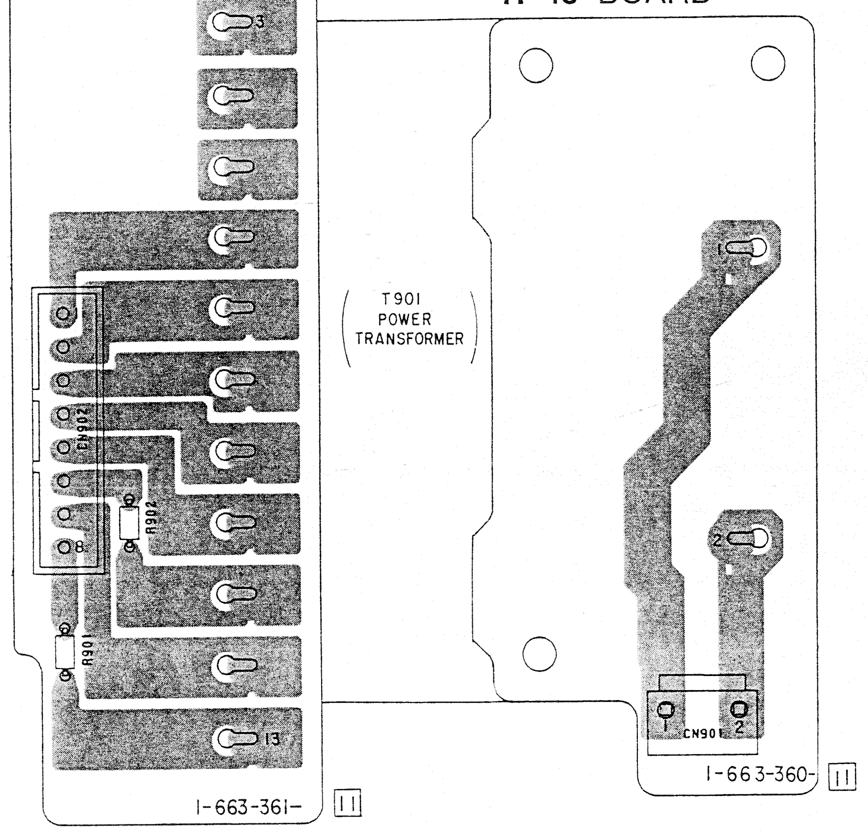
PS-379 BOARD

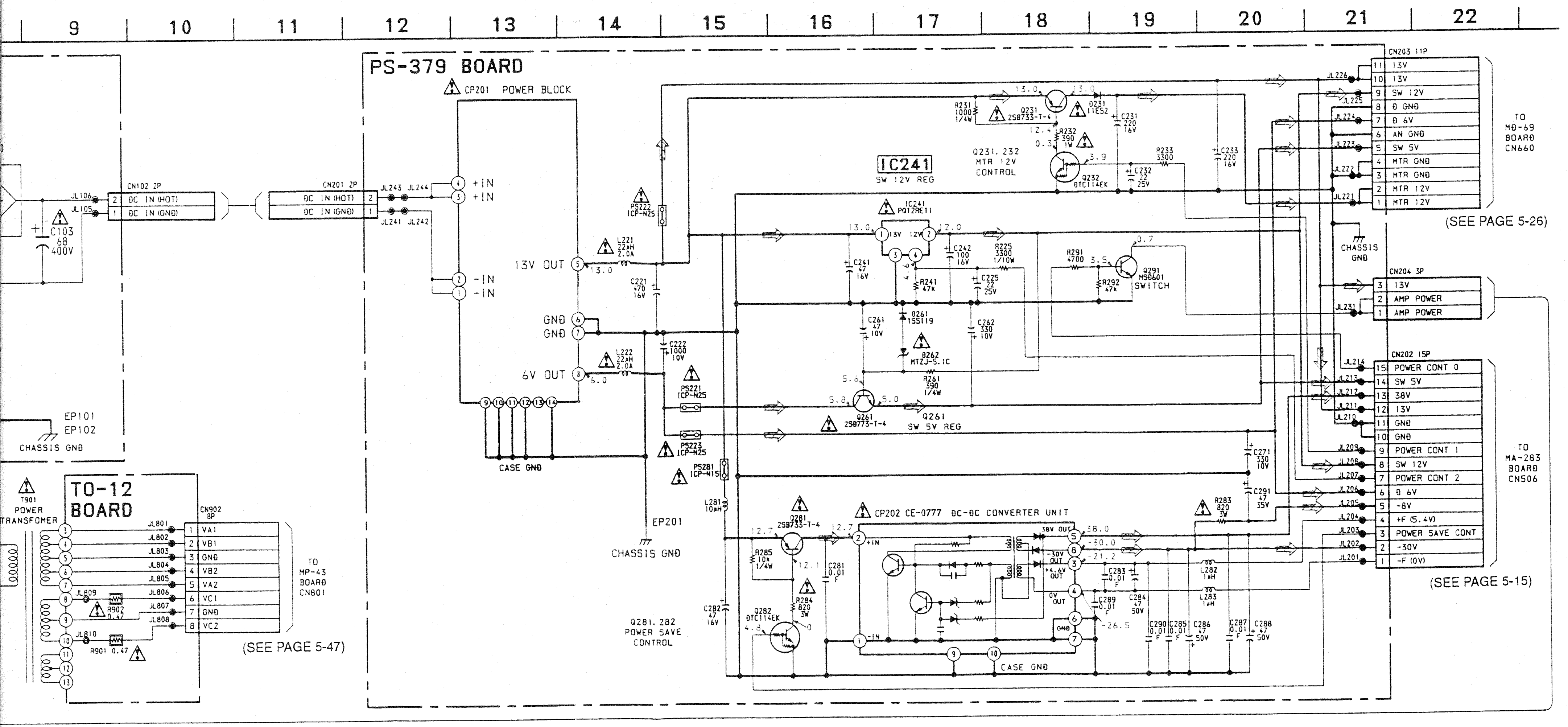

A
B
C
D
E
F
04
1
2
3
4
5
6
7
CN201
CN203
CN204
CP201
CP202
C201
IC241
Q281
JS283
1-663-352-
12

PS-379 BOARD	
CN201	D-1
CN202	D-7
CN203	A-6
CN204	A-5
D231	B-6
D261	F-4
D262	F-4
IC241	B-5
Q231	B-5
Q232	B-7
Q261	F-4
Q281	E-5
Q282	D-5
Q291	A-5

TO-12 BOARD

TI-45 BOARD


T901
POWER
TRANSFORMER
CN902
R902
R901
CN901
3
8
13
2
1-663-361-
11
1-663-360-
11


9
10
11
12
13
14
15
16
17
18
19
20
21
22
PS-379 BOARD
CP201 POWER BLOCK
CN102 2P
DC IN (HOT)
DC IN (GND)
C103
68
400V
CN201 2P
+IN
-IN
13V OUT
GND
6V OUT
CASE GND
EP101
EP102
CHASSIS GND
IC241
SW 12V REG
IC241
PQ12RE11
Q231, 232
MTR 12V
CONTROL
Q231
2SB733-T-4
Q232
DTC114EK
Q291
MSD601
SWITCH
Q261
2SB773-T-4
Q261
SW 5V REG
D261
1SS119
D262
MTZJ-5.1C
PS221
ICP-N25
PS222
ICP-N25
PS223
ICP-N25
PS281
ICP-N15
L221
22μH
2.0A
L222
22μH
2.0A
EP201
CHASSIS GND
Q281, 282
POWER SAVE
CONTROL
Q281
2SB733-T-4
Q282
DTC114EK
CP202 CE-0777 DC-DC CONVERTER UNIT
38V OUT
-30V OUT
+4.6V OUT
0V OUT
CASE GND
CN203 11P
11 13V
10 13V
9 SW 12V
8 D GND
7 D 6V
6 AN GND
5 SW 5V
4 MTR GND
3 MTR GND
2 MTR 12V
1 MTR 12V
TO
MD-69
BOARD
CN660
(SEE PAGE 5-26)
CHASSIS
GND
CN204 3P
3 13V
2 AMP POWER
1 AMP POWER
CN202 15P
15 POWER CONT 0
14 SW 5V
13 38V
12 13V
11 GND
10 GND
9 POWER CONT 1
8 SW 12V
7 POWER CONT 2
6 D 6V
5 -8V
4 +F (5.4V)
3 POWER SAVE CONT
2 -30V
1 -F (0V)
TO
MA-283
BOARD
CN506
(SEE PAGE 5-15)
T901
POWER
TRANSFOMER
TO-12
BOARD
CN902
8P
1 VA1
2 VB1
3 GND
4 VB2
5 VA2
6 VC1
7 GND
8 VC2
R902 0.47
R901 0.47
TO
MP-43
BOARD
CN801
(SEE PAGE 5-47)
NO MARK:E-E MODE

SECTION 6
REPAIR PARTS LIST

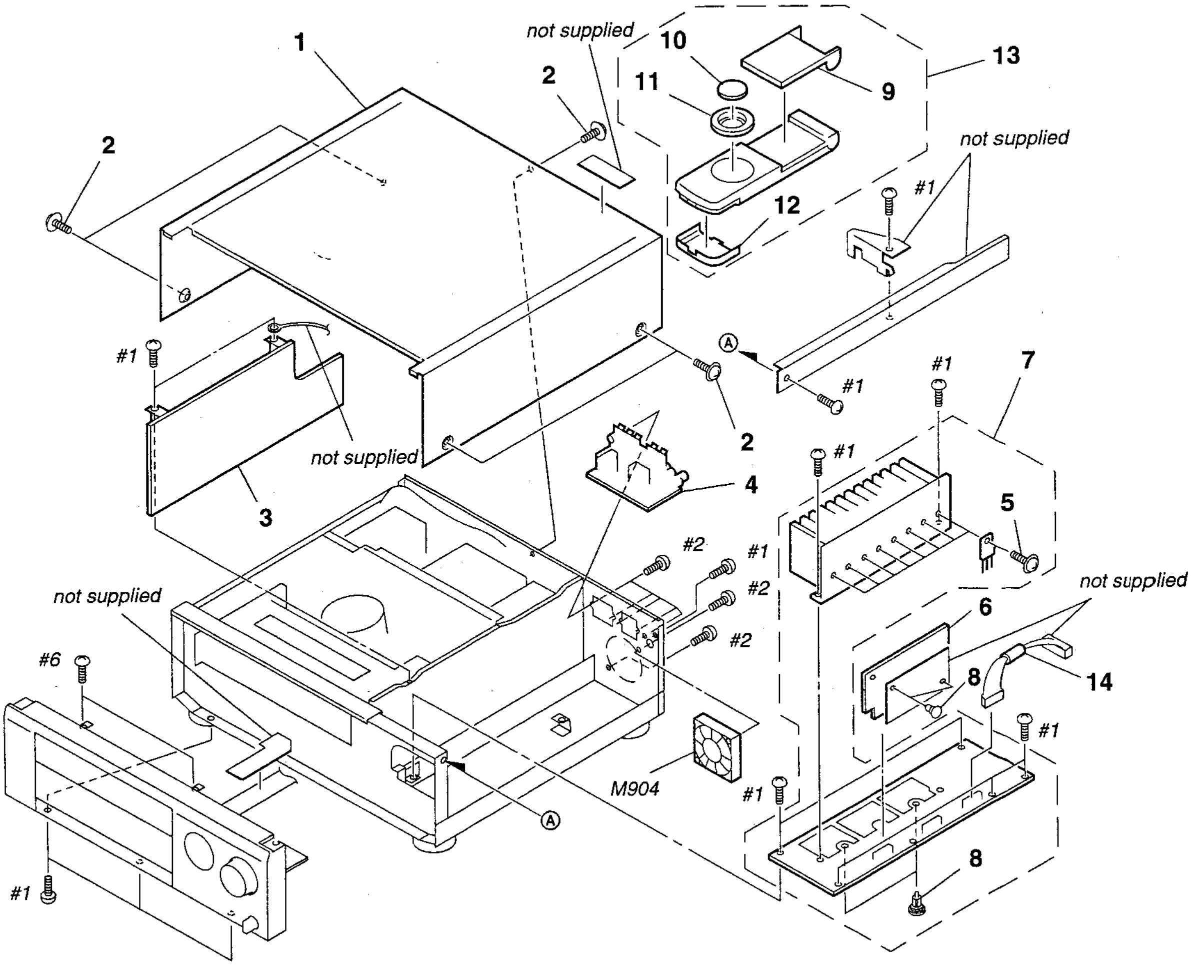
6-1. EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

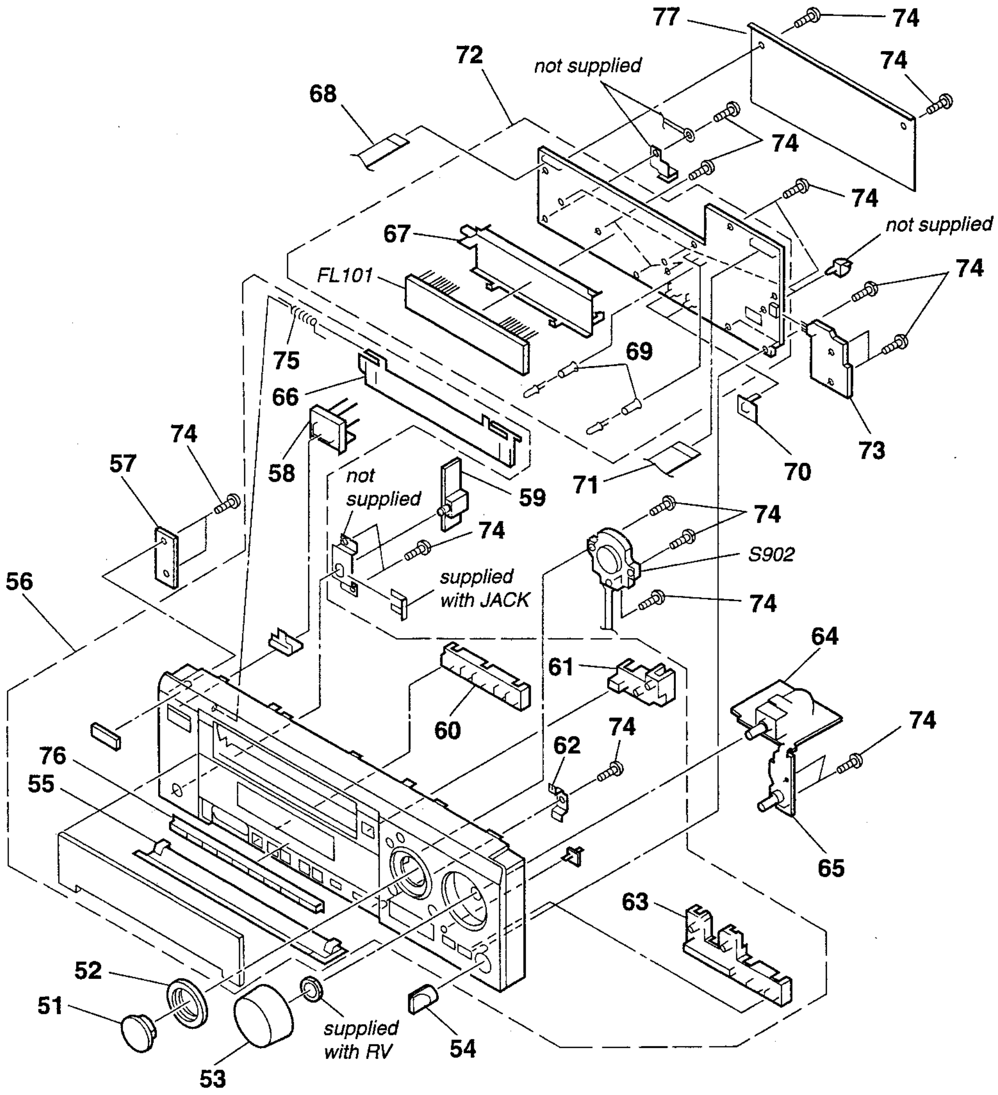
The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

6-1-1. CASE ASSEMBLY



Ref. No.	Part No.	Description	Remark
* 1	3-973-343-01	CASE, UPPER	
2	3-710-901-11	SCREW, TAPPING	
* 3	A-6794-270-A	SR-24 BOARD, COMPLETE	
* 4	1-663-362-11	SP-37 BOARD	
5	3-905-609-01	SCREW (TRANSISTOR)	
* 6	1-663-363-11	MP-44 BOARD	
* 7	A-6796-516-A	MP-43 BOARD, COMPLETE	
8	4-812-134-00	RIVET (DIA. 3.5), NYLON	
9	3-709-114-01	COVER (V193/V193A), REMOTE CONTROL	
10	3-972-850-01	BUTTON, FUNCTION	
11	3-973-077-31	RING, CHANGE SPEED	
12	3-709-044-01	COVER, BATTERY	
13	1-473-896-11	REMOTE COMMANDER (RMT-V193) (UX)	
13	1-473-896-21	REMOTE COMMANDER (RMT-V193A) (VC,B,NP)	
14	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
M904	1-698-380-11	MOTOR, FAN (DC)	

6-1-2. FRONT PANEL ASSEMBLY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72
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67
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FL101
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59
not supplied
74
74
S902
56
supplied with JACK
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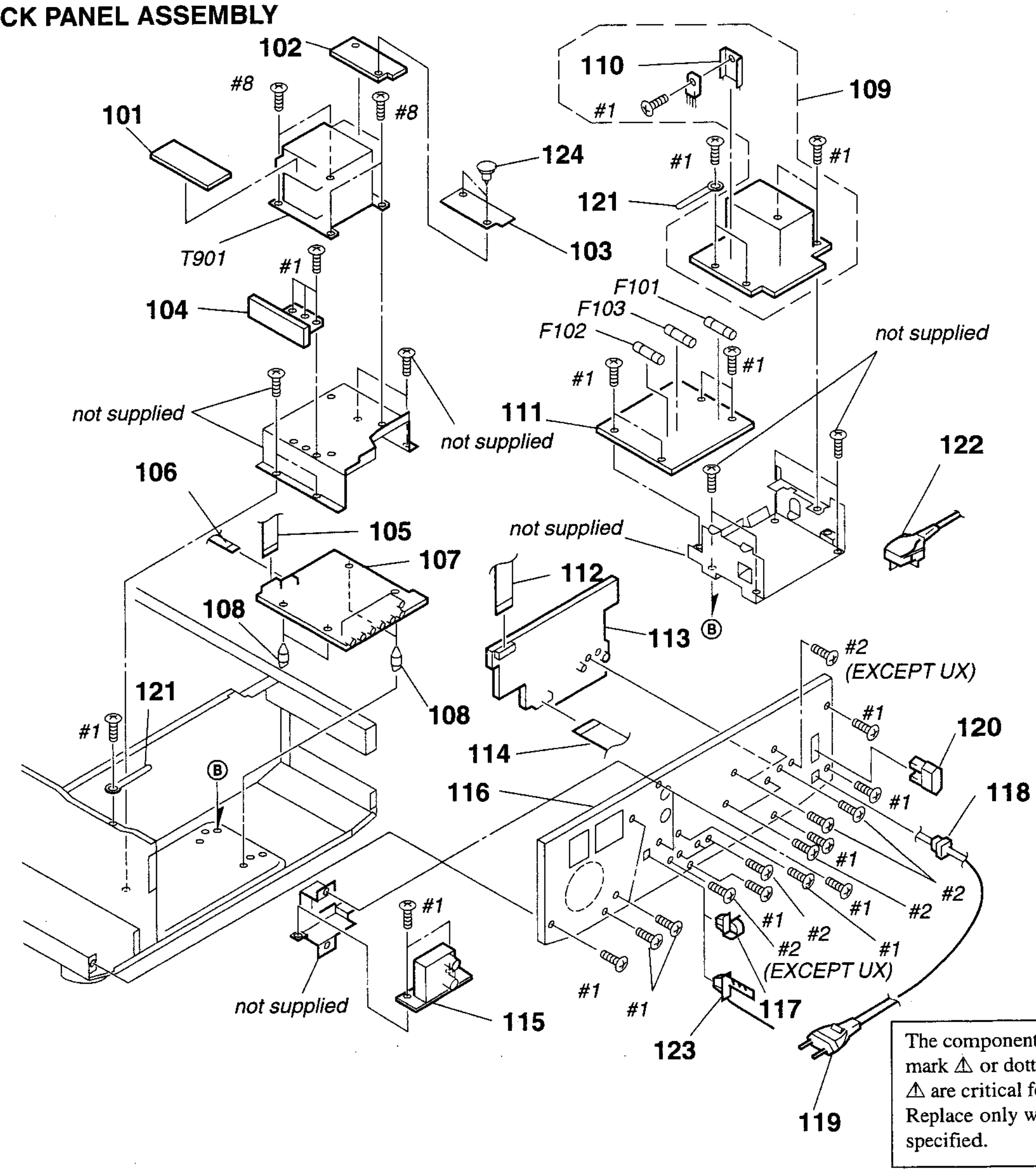
65
63
52
51
supplied with RV
54
53

Ref. No.	Part No.	Description	Remark
51	3-972-782-12	BUTTON, CENTER	
52	3-973-077-12	RING, CHANGE SPEED	
53	X-4947-074-2	KNOB (R48) ASSY	
54	4-957-383-01	KNOB (F14)	
55	3-973-359-01	DOOR, JACK (VC,B,NP)	
55	3-973-359-11	DOOR, JACK (UX)	
56	X-3946-715-1	PANEL ASSY, FRONT (VC,NP)	
56	X-3946-716-1	PANEL ASSY, FRONT (UX)	
56	X-3946-717-1	PANEL ASSY, FRONT (B)	
* 57	1-663-355-11	FL-78 BOARD	
58	3-966-213-01	BUTTON, POWER	
* 59	1-663-354-11	HP-94 BOARD	
60	3-973-357-01	BUTTON (SUB)	
61	3-973-355-01	BUTTON (EJ)	
* 62	3-960-556-01	SPRING, DOOR LOCK	
63	3-973-358-01	BUTTON (FUN)	

Ref. No.	Part No.	Description	Remark
* 64	1-663-364-11	VR-61 BOARD	
* 65	1-663-365-11	AB-23 BOARD	
66	3-973-354-01	DOOR, CASSETTE	
* 67	3-973-350-01	HOLDER (FL)	
68	1-777-620-11	CABLE, FLAT (FUF-16) 19P	
69	3-697-607-01	HOLDER, LED	
70	3-954-403-11	KNOB (LARGE), SLIDE	
71	1-777-619-11	CABLE, FLAT (FSF-11) 23P	
* 72	A-6794-262-A	FM-27 BOARD, COMPLETE	
* 73	1-663-356-11	FR-112 BOARD	
74	4-951-620-01	SCREW (2.6X8), +BVTP	
75	3-953-432-01	SPRING (GE), FL	
76	3-973-356-01	BUTTON (9)	
77	3-974-081-01	COVER, P.C.B	
FL101	1-517-568-11	TUBE, FLUORESCENT INDICATOR	
S902	1-762-844-11	SWITCH, ROTARY	

6-1-3. BACK PANEL ASSEMBLY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T901
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#1
#1
121
F101
F103
F102
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122
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113
Ⓑ
#2
(EXCEPT UX)
#1
120
114
116
118
#1
#1
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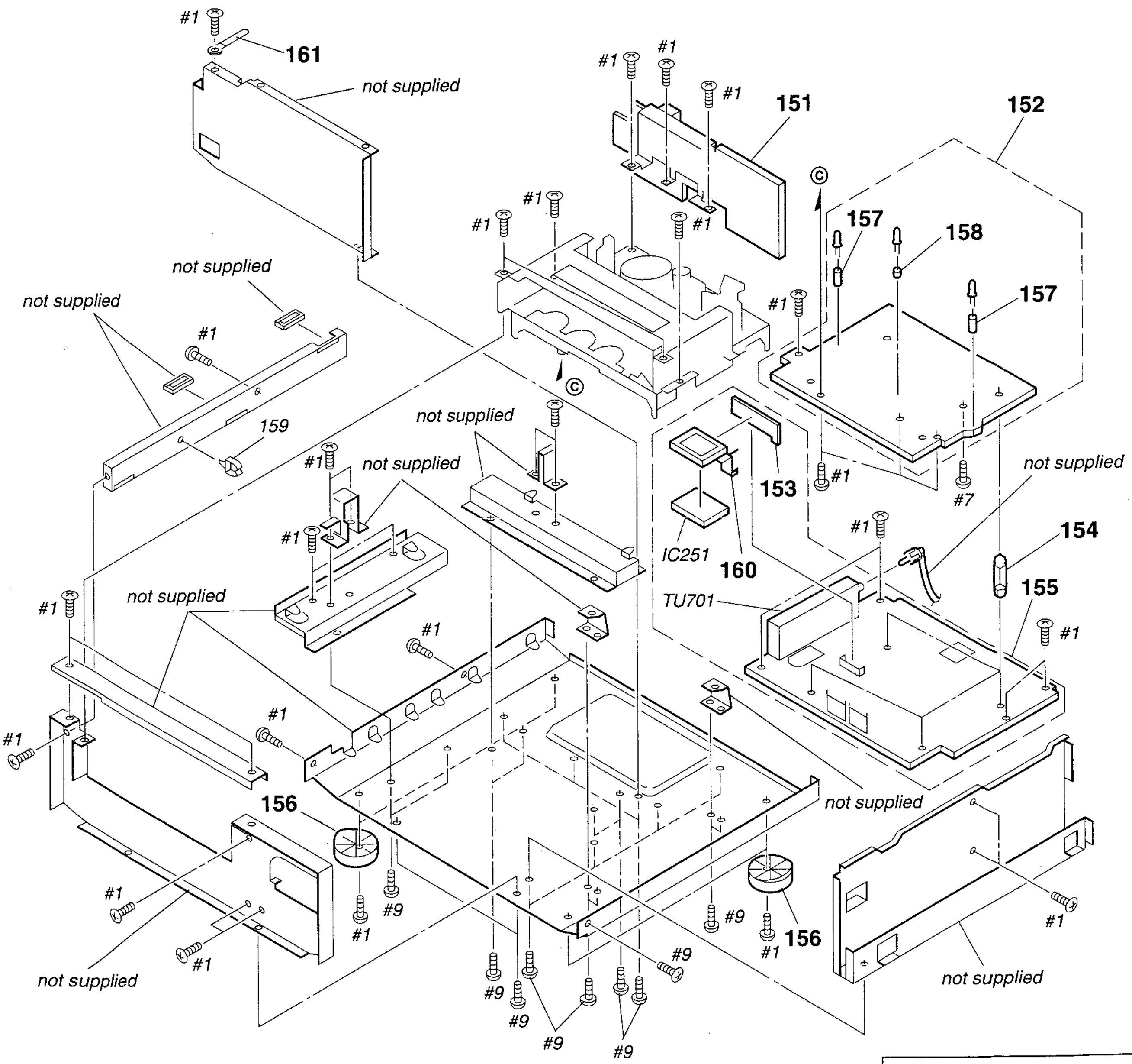
#2
#2
#1
#2
#2
#1
(EXCEPT UX)
#1
#1
117
123
119

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 101	1-663-361-11	TO-12 BOARD	
* 102	1-663-360-11	TI-45 BOARD	
103	3-974-078-01	COVER (TRANSFORMER)	
* 104	1-663-366-11	RG-40 BOARD	
105	1-777-618-11	CABLE, FLAT (FSI-1) 11P	
106	1-777-616-11	CABLE, FLAT (FRI-3) 5P	
* 107	A-6794-276-A	IO-57 BOARD, COMPLETE (UX)	
* 107	A-6794-282-A	IO-57 BOARD, COMPLETE (VC,B,NP)	
* 108	4-884-834-00	SUPPORT, PC	
* 109	A-6794-265-A	PS-379 BOARD, COMPLETE	
* 110	3-951-893-01	HEAT SINK	
* 111	1-663-351-12	AC-106 BOARD	
112	1-777-615-11	CABLE, FLAT (FRI-2) 17P	
* 113	A-6794-259-A	IO-56 BOARD, COMPLETE (UX)	
* 113	A-6794-280-A	IO-56 BOARD, COMPLETE (VC,B,NP)	
114	1-777-617-11	CABLE, FLAT (FII-1) 21P	
* 115	1-663-347-11	RF-43 BOARD	
* 116	3-973-328-01	PANEL, BACK (VC)	
* 116	3-973-328-11	PANEL, BACK (NP)	
* 116	3-973-328-21	PANEL, BACK (B)	
* 116	3-973-328-31	PANEL, BACK (UX)	
* 117	4-949-235-01	HOOK (VC,B,NP)	
* 118	3-703-244-00	BUSHING (2104), CORD	
⚠119	1-769-744-11	CORD, POWER (VC,B,NP)	
⚠120	1-526-794-11	OUTLET, AC (VC,B,NP)	
121	3-703-397-01	STOPPER, WIRING	
⚠122	1-696-570-21	CORD, POWER (UX)	
123	4-956-370-02	BAND, PLUG FIXED (UX)	
124	4-812-134-11	RIVET (DIA. 3.5), NYLON	
⚠F101	1-532-203-00	FUSE (2A/250V)	
⚠F102	1-532-259-00	FUSE (1.6A/250V)	
⚠F103	1-532-286-00	FUSE (2.5A/250V) (VC,B,NP)	
⚠T901	1-429-524-21	TRANSFORMER, POWER	

6-1-4. CHASSIS ASSEMBLY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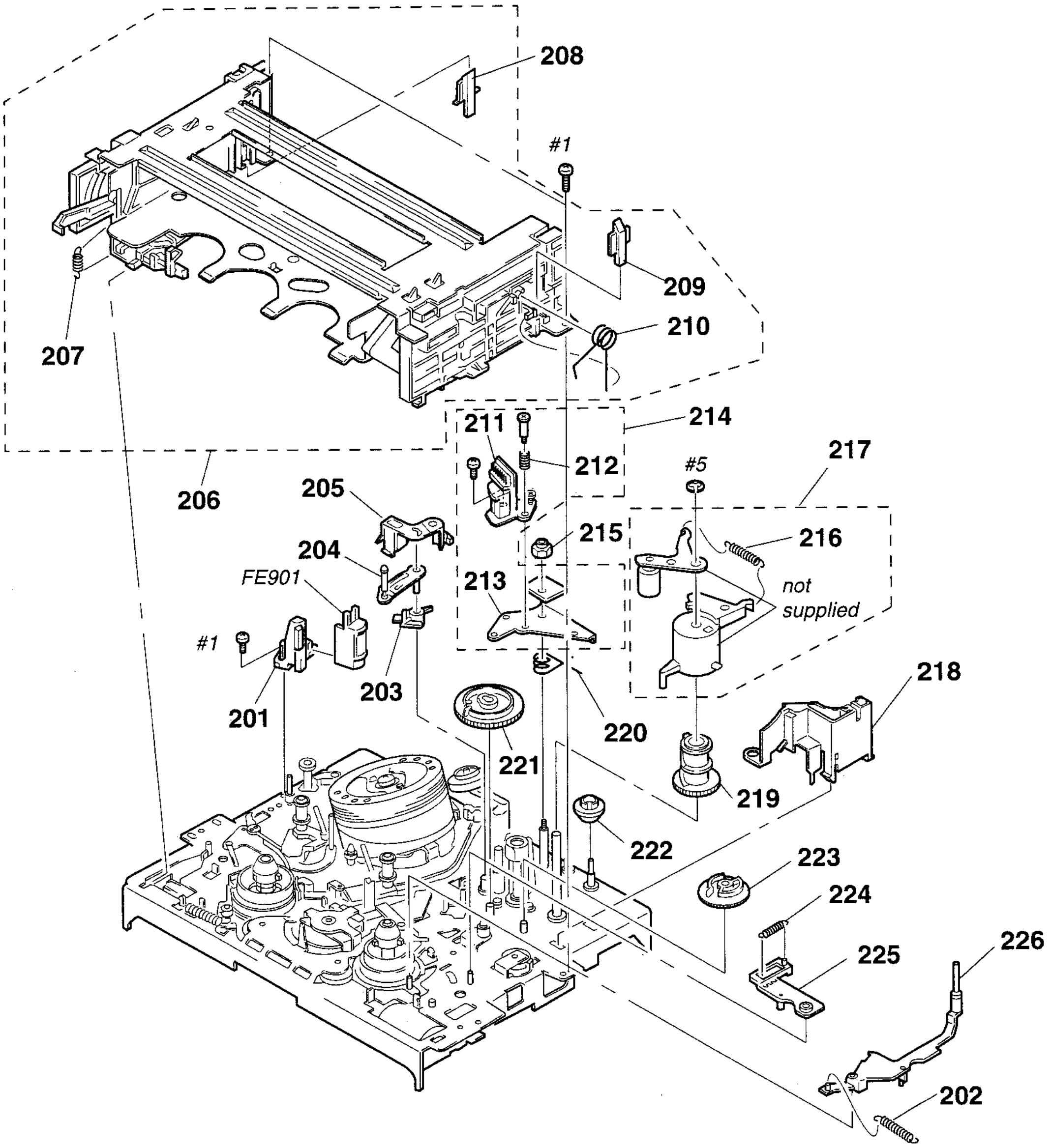
The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 151	A-6796-515-A	RP-213 BOARD, COMPLETE (UX,VC,NP)	
* 151	A-6796-520-A	RP-213 BOARD, COMPLETE (B)	
* 152	A-6794-266-A	MD-69 BOARD, COMPLETE	
* 153	1-663-348-11	TK-39 BOARD (B)	
* 154	3-682-419-21	HOLDER, P.C.B	
* 155	A-6796-514-A	MA-283 BOARD, COMPLETE (UX)	
* 155	A-6796-518-A	MA-283 BOARD, COMPLETE (VC)	
* 155	A-6796-519-A	MA-283 BOARD, COMPLETE (B)	
* 155	A-6796-521-A	MA-283 BOARD, COMPLETE (NP)	
156	X-4947-025-1	FOOT ASSY	
* 157	3-960-273-01	SPACER, TOP END	
* 158	3-960-274-01	SPACER, LED	
159	4-962-113-01	CLAMP	
* 160	3-957-421-11	HOLDER, SECAM IC (B)	
161	3-703-397-01	STOPPER, WIRING	
IC251	1-809-959-12	IC TME656 (B)	
⚠TU701	1-693-273-21	TUNER, IF (BTF-3WU601) (UX)	
⚠TU701	1-693-267-22	TUNER, IF (BTF-3WC401) (VC)	
⚠TU701	1-693-272-22	TUNER, IF (BTF-3WC411) (NP)	
⚠TU701	1-693-269-22	TUNER, IF (BTF-3WC441) (B)	

6-1-5. MECHANICAL DECK ASSEMBLY (1)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FE901
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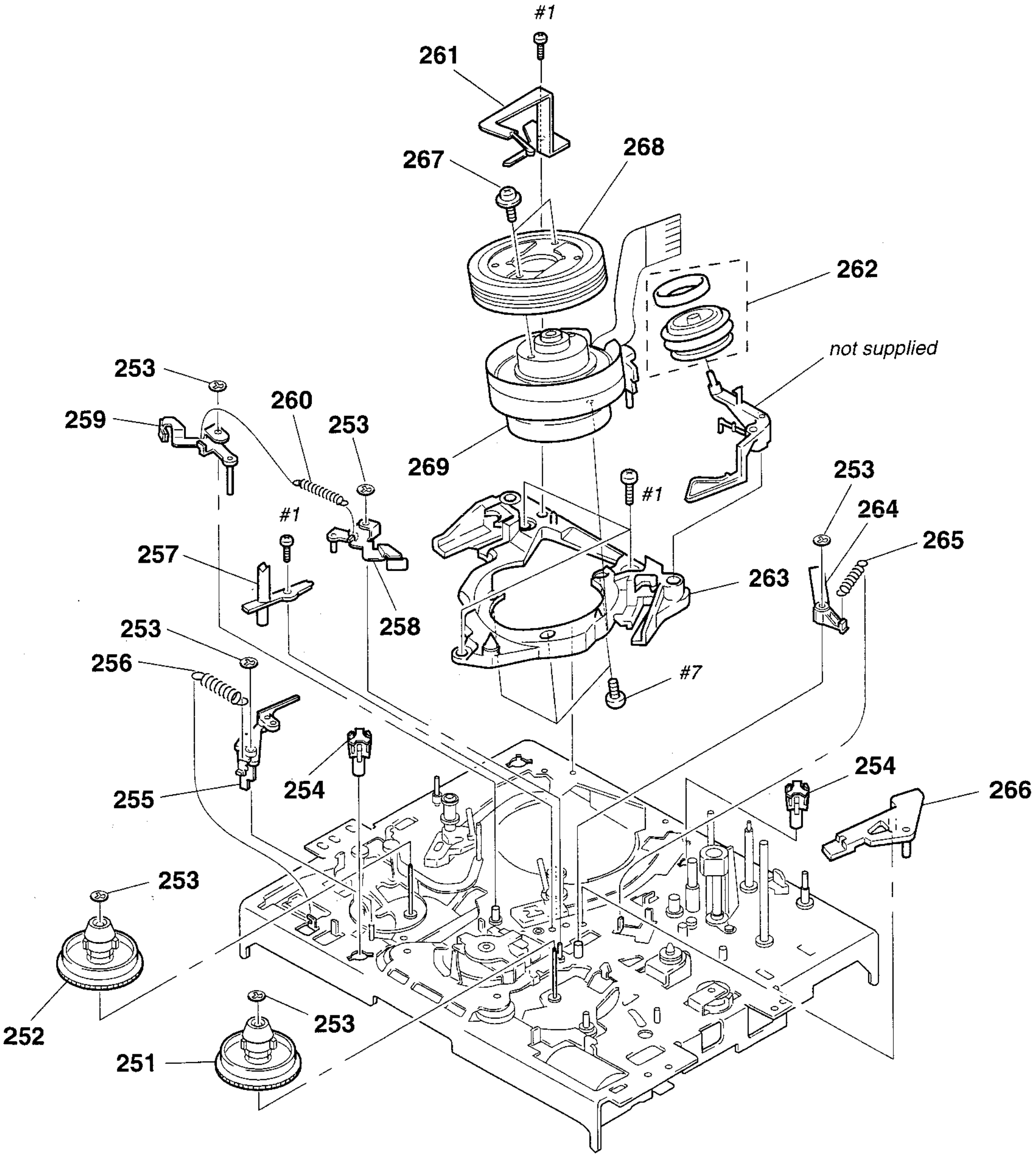
202

Ref. No.	Part No.	Description	Remark
201	X-3945-348-2	FEH ASSY	
202	3-958-505-01	SPRING (SOFT BRAKE T), TENSION	
203	3-958-421-01	HOLDER, TG8	
204	X-3944-797-1	TG8 ASSY	
205	3-962-298-01	BRACKET, TG7 TAPE	
206	A-6759-603-A	FL BLOCK ASSY	
207	3-958-467-01	SPRING, TENSION COIL	
208	3-970-472-01	PLATE, END SENSOR LIGHT GUIDE	
209	3-970-473-01	PLATE, TOP SENSOR LIGHT GUIDE	
210	3-970-471-01	SPRING (DECK OPEN), TORSION	
211	1-506-485-11	PIN, CONNECTOR 6P	
212	3-960-439-02	SPRING (ACE), COMPRESSION	
213	3-958-491-01	BASE, ACE	
214	A-6736-103-A	ACE BLOCK ASSY	

Ref. No.	Part No.	Description	Remark
215	3-942-867-01	NUT, AC HEIGHT ADJUSTMENT	
216	3-958-455-01	SPRING (PINCH), TENSION	
217	A-6746-072-A	PRESS BLOCK ASSY, PINCH	
218	3-958-454-01	OPNER, LID	
219	3-958-151-01	GEAR, ELEVATOR	
220	3-958-487-01	SPRING, (ACE) TORSION COIL	
221	3-958-152-01	GEAR, TG8	
222	3-958-501-01	SCREW, ACE ADJUSTMENT	
223	3-958-153-01	GEAR, PRESS	
224	3-958-462-01	SPRING (RVS BRAKE), TENSION	
225	X-3943-885-1	ARM ASSY, RVS BRAKE	
226	X-3943-882-1	BRAKE (T) ASSY, SOFT	
FE901	1-500-144-11	HEAD, FE	

6-1-6. MECHANICAL DECK ASSEMBLY (2)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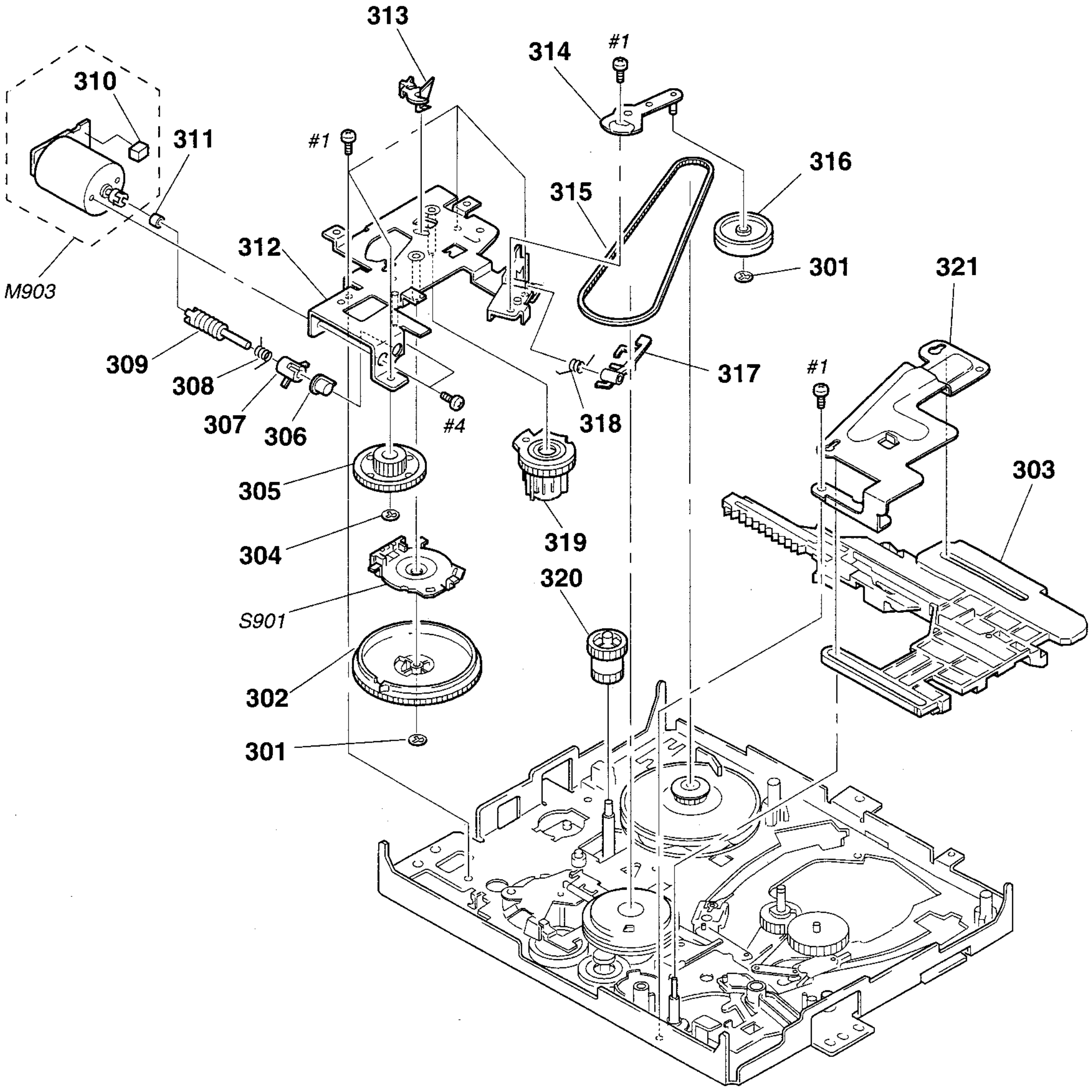
251

Ref. No.	Part No.	Description	Remark
251	X-3943-903-1	TABLE, REEL (T) ASSY	
252	X-3943-902-1	TABLE, REEL (S) ASSY	
253	3-669-595-00	WASHER (2), STOPPER	
254	3-958-390-01	SHAFT, PC BOARD	
255	3-958-450-01	BRAKE (S), SOFT	
256	3-958-443-01	SPRING, STRETCH COIL SPRING	
257	3-958-391-01	PLATE, LIGHT GUIDE, LED	
258	X-3945-444-1	BRAKE (T) ASSY, MAIN	
259	X-3945-443-1	BRAKE (S) ASSY, MAIN	
260	3-958-517-01	SPRING, TENSIONCOIL	
261	X-3943-899-5	GROUND ASSY, SHAFT	
262	X-3944-363-4	ROLLER ASSY, HC	
263	3-969-629-01	BASE, DRUM	
264	3-960-139-01	ARM, NEUTRALITY	
265	3-958-535-01	SPRING, TENSION	
266	3-960-138-01	ARM, PENDULUM COMPULSION	
267	2-643-205-01	SCREW, +PW 3X8	
268	8-848-625-02	DRUM ASSY, UPPER (DZR-68-R)	
269	8-848-666-11	DRUM ASSY, LOWER (DZL-51B/J-RP)	

6-1-7. MECHANICAL DECK ASSEMBLY (3)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S901
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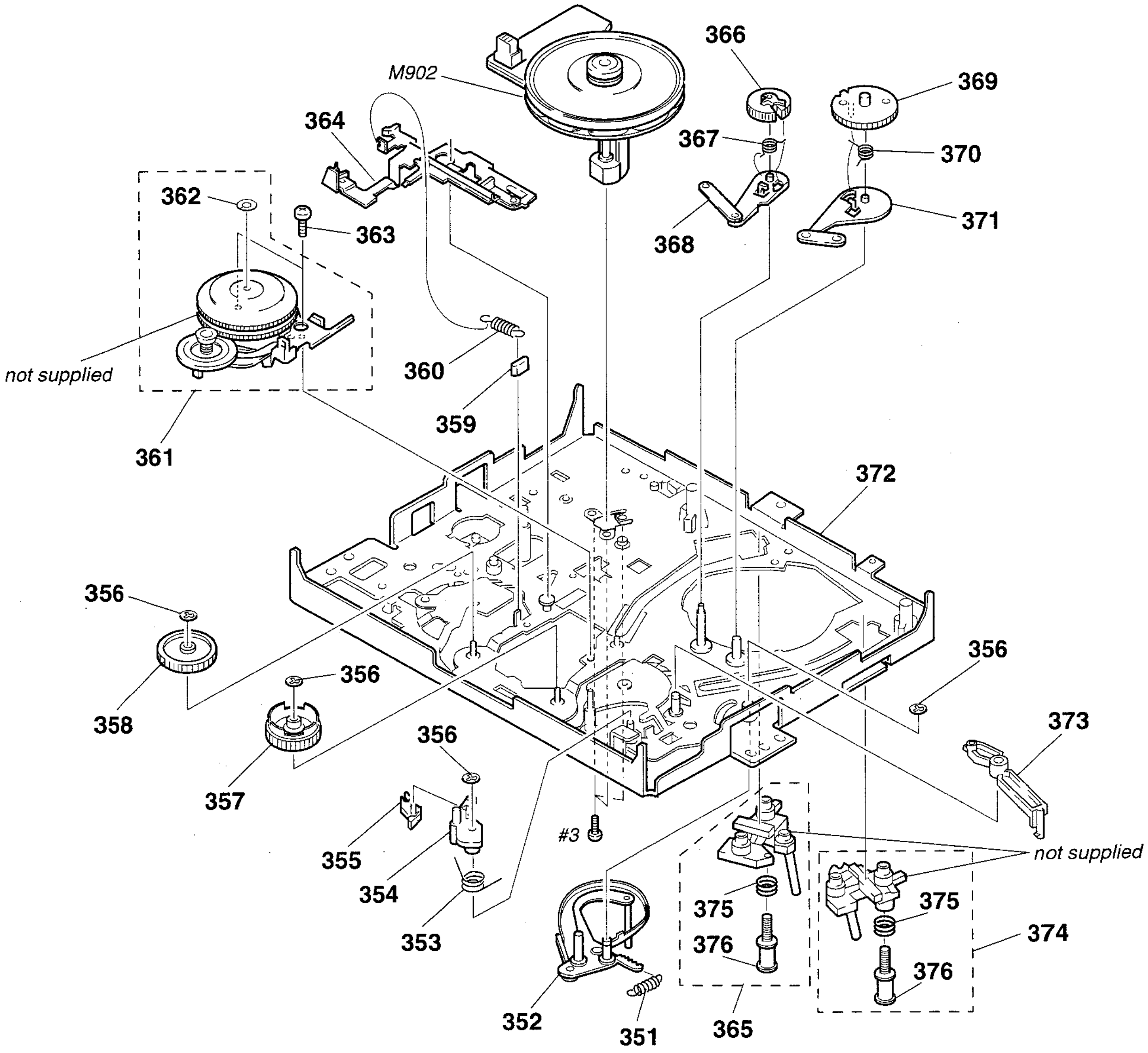
301

Ref. No.	Part No.	Description	Remark
301	3-669-595-00	WASHER (2), STOPPER	
302	3-958-161-04	GEAR, CAM	
303	3-958-163-04	SLIDER, MAIN	
304	3-966-092-01	RING, RETAINING, SLIT WASHER	
305	3-958-157-01	WHEEL, WORM	
306	3-958-155-01	BEARING, CAM MOTOR	
307	3-958-160-01	PROPELLOR	
308	3-958-460-01	SPRING, ONE-WAY	
309	3-958-159-01	WORM	
310	1-766-723-11	CONNECTOR, BOARD TO BOARD 3P	
311	3-959-840-11	RUBBER, JOINT	
* 312	X-3943-884-1	CHASSIS ASSY, CAM MOTOR	
313	3-965-977-03	RETAINER, CAM GEAR	
314	X-3943-889-1	ARM ASSY, TENSION VEHICLE	
315	3-958-361-01	BELT, TIMING	
316	3-958-448-01	WHEEL, TENSION	
317	X-3943-888-1	BRAKE ASSY, CAP	
318	3-958-445-01	SPRING,TORSIONCOIL(CAP BRAKE)	
319	3-958-156-02	GEAR, FL DRIVING	
320	3-958-162-01	GEAR,UPPER/LOWER COMMUNICATON	
* 321	3-959-763-01	RETAINER	
S901	1-762-076-11	SWITCH, ROTARY (ENCODER)	
M903	X-3943-883-1	MOTOR ASSY, CAM	

6-1-8. MECHANICAL DECK ASSEMBLY (4)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Ref. No.	Part No.	Description	Remark
351	3-958-492-01	SPRING (TG1), TENSION COIL	
352	X-3943-886-1	TG1 ASSY	
353	3-958-534-01	SPRING, TORSION	
354	3-958-532-01	ARM, S WINDING	
355	3-958-533-01	CLAW, S WINDING	
356	3-669-595-00	WASHER (2), STOPPER	
357	3-962-959-01	GEAR (S-K), IDLER	
358	3-962-960-01	GEAR (T-K), IDLER	
359	3-959-840-11	RUBBER, JOINT	
360	3-958-529-01	SPRING (MOMENT), TENSION	
361	A-6739-102-A	RKB BLOCK ASSY	
362	3-966-092-01	RING, RETAINING, SLIT WASHER	
363	3-961-441-01	SCREW (3X8)	
364	X-3943-897-1	LEVER ASSY, TRIGGER	
365	A-6750-325-A	SHUTTLE (T) BLOCK ASSY	
366	3-958-485-02	GEAR (T), LOADING	
367	3-960-449-01	SPRING (T), TORSION COIL	
368	X-3943-891-3	LEVER (T) ASSY, LOADING	
369	3-958-476-01	GEAR (S), LOADING	
370	3-960-448-01	SPRING (S), TORSION COIL	
371	X-3943-890-2	LEVER (S) ASSY, LOADING	
372	X-3945-485-4	CHASSIS ASSY, MECHANICAL	
373	3-958-504-01	ARM, FIXED RELEASE	
374	A-6750-324-A	SHUTTLE (S) BLOCK ASSY	
375	3-965-178-01	SPRING	
376	X-3944-378-1	ROLLER ASSY, GUIDE	
M902	1-698-409-14	MOTOR, DC (CAPSTAN)	

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA.. : μA.. uPA.. : μPA..
  uPB.. : μPB.. uPC.. : μPC.. uPD.. : μPD..
- CAPACITORS
  uF : μF
- COILS
  uH : μH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	1-663-365-11	AB-23 BOARD ***********	
		(Ref.No.5,000 series)	
		< VARIABLE RESISTOR >	
RV501	1-223-961-11	RES, VAR, CARBON 100K/100K (BALANCE)	
*	1-663-351-12	AC-106 BOARD ************	
		(Ref.No.8,000 series)	
		< CAPACITOR >	
⚠C101	1-104-706-11	FILM 0.22uF 20% 250V	
⚠C102	1-104-705-11	FILM 0.1uF 20% 250V	
⚠C103	1-107-405-11	ELECT 68uF 20% 400V	
⚠C104	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C105	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C106	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C107	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C108	1-113-915-11	CERAMIC 0.001uF 20% 250V	
⚠C109	1-115-385-11	CERAMIC 2200PF 20% 400V	
⚠C110	1-115-385-11	CERAMIC 2200PF 20% 400V	
⚠C111	1-115-385-11	CERAMIC 2200PF 20% 400V	
		< CONNECTOR >	
CN101	1-564-321-00	PIN, CONNECTOR 2P	
* CN102	1-564-321-21	PIN, CONNECTOR 2P	
CN103	1-564-321-00	PIN, CONNECTOR 2P	
* CN104	1-564-321-21	PIN, CONNECTOR 2P (VC,B,NP)	
CN105	1-506-482-11	PIN, CONNECTOR 3P	
		< DIODE >	
⚠D101	8-719-510-06	DIODE S1WB60	
D102	8-719-987-63	DIODE 1N4148M	
		< EARTH TERMINAL >	
* EP101	1-537-738-21	TERMINAL, EARTH	
* EP102	1-537-738-21	TERMINAL, EARTH	

Ref. No.	Part No.	Description	Remark
		< FUSE >	
⚠F101	1-532-203-00	FUSE (2A/250V)	
⚠F102	1-532-259-00	FUSE (1.6A/250V)	
⚠F103	1-532-286-00	FUSE (2.5A/250V) (VC,B,NP)	
		< FUSE HOLDER >	
FH101	1-533-223-11	HOLDER, FUSE	
FH102	1-533-223-11	HOLDER, FUSE	
FH103	1-533-223-11	HOLDER, FUSE	
FH104	1-533-223-11	HOLDER, FUSE	
FH105	1-533-223-11	HOLDER, FUSE (VC,B,NP)	
FH106	1-533-223-11	HOLDER, FUSE (VC,B,NP)	
		< LINE FILTER >	
⚠LF101	1-424-485-11	FILTER, LINE	
⚠LF102	1-403-599-11	FILTER, LINE 33mH	
⚠LF103	1-403-599-11	FILTER, LINE 33mH	
		< RESISTOR >	
⚠R101	1-214-947-00	METAL 2.7M 1% 1/2W	
		< RELAY >	
⚠RY101	1-755-018-11	RELAY	
*	1-663-355-11	FL-78 BOARD ***********	
			(Ref.No.3,000 series)
		< CONNECTOR >	
CN101	1-506-469-11	PIN, CONNECTOR 4P	
		< DIODE >	
D101	8-719-045-62	LED SLR-342VC-A-47 (ON/STANDBY:RED)	
D102	8-719-056-07	LED SLR-342MC3F (ON/STANDBY:GRN)	
D103	8-719-056-07	LED SLR-342MC3F (ON/STANDBY:GRN)	

FL-78 FM-27

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q101	8-729-424-18	TRANSISTOR UN2113			
Q102	8-729-421-19	TRANSISTOR UN2213			
		< RESISTOR >			
R101	1-216-033-00	METAL CHIP	220	5%	1/10W
R102	1-216-021-00	METAL CHIP	68	5%	1/10W
		< SWITCH >			
S101	1-571-977-11	SWITCH, TACTILE (ON/STANDBY)			

Ref. No.	Part No.	Description			Remark
*	A-6794-262-A	FM-27 BOARD, COMPLETE			
		*********************			
		(Ref.No.4,000 series)			
	3-697-607-01	HOLDER, LED			
*	3-973-350-01	HOLDER (FL)			
		< CAPACITOR >			
C101	1-124-584-00	ELECT	100uF	20%	10V
C102	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C106	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C121	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C131	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C201	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C301	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
CN101	1-774-485-41	CONNECTOR, FFC/FPC 19P			
CN102	1-774-489-41	CONNECTOR, FFC/FPC 23P			
* CN105	1-565-480-11	CONNECTOR, BOARD TO BOARD 4P			
CN107	1-774-471-41	CONNECTOR, FFC/FPC 5P			
* CN301	1-573-129-31	PIN, CONNECTOR 6P			
		< JACK >			
CNJ301	1-774-509-11	JACK, PIN 3P (VIDEO2 INPUT)			
		< DIODE >			
D101	8-719-404-49	DIODE MA111			
D102	8-719-404-49	DIODE MA111			
D103	8-719-404-49	DIODE MA111			
D104	8-719-404-49	DIODE MA111			
D105	8-719-404-49	DIODE MA111			
D106	8-719-404-49	DIODE MA111			
D107	8-719-404-49	DIODE MA111			
D108	8-719-404-49	DIODE MA111			
D109	8-719-404-49	DIODE MA111			

Ref. No.	Part No.	Description			Remark
D110	8-719-422-86	DIODE MA8082-L-TX			
D130	8-719-404-49	DIODE MA111			
D201	8-719-946-30	LED SLR34DC3 (❚❚)			
D202	8-719-812-32	LED TLY123 (◀◀)			
D203	8-719-812-32	LED TLY123 (▶▶)			
D204	8-719-970-67	LED SLR-34MCA49 (▶)			
D301	8-719-421-59	DIODE MA3130WA-TX			
D302	8-719-421-59	DIODE MA3130WA-TX			
D303	8-719-421-59	DIODE MA3130WA-TX			
D304	8-719-422-62	DIODE MA8062-L-TX			
		< FILTER >			
FL101	1-517-568-11	TUBE, FLUORESCENT INDICATOR			
FL301	1-236-163-11	ENCAPSULATED COMPONENT			
FL302	1-236-163-11	ENCAPSULATED COMPONENT			
		< IC >			
IC101	8-752-870-11	IC CXP82940-012Q			
IC102	1-466-833-11	IC RAY-CATCHER BLOCK, REMOCON			
IC201	8-759-366-45	IC NJU3713G(TE2)			
		< JUMPER RESISTOR >			
JR301	1-216-295-91	CONDUCTOR, CHIP		(2012)	
		< TRANSISTOR >			
Q101	8-729-424-08	TRANSISTOR UN2111			
Q102	8-729-424-08	TRANSISTOR UN2111			
Q103	8-729-424-08	TRANSISTOR UN2111			
		< RESISTOR >			
R101	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R102	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R105	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R106	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R109	1-216-073-00	METAL CHIP	10K	5%	1/10W
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W
R111	1-216-025-00	METAL GLAZE	100	5%	1/10W
R112	1-216-025-00	METAL GLAZE	100	5%	1/10W
R113	1-216-025-00	METAL GLAZE	100	5%	1/10W
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-025-00	METAL GLAZE	100	5%	1/10W
R116	1-216-025-00	METAL GLAZE	100	5%	1/10W
R117	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R119	1-216-073-00	METAL CHIP	10K	5%	1/10W
R120	1-216-073-00	METAL CHIP	10K	5%	1/10W
R121	1-216-073-00	METAL CHIP	10K	5%	1/10W
R122	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-073-00	METAL CHIP	10K	5%	1/10W
R125	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R126	1-216-073-00	METAL CHIP	10K	5%	1/10W
R130	1-216-025-00	METAL GLAZE	100	5%	1/10W
R131	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R132	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R133	1-216-073-00	METAL CHIP	10K	5%	1/10W
R134	1-216-073-00	METAL CHIP	10K	5%	1/10W
R135	1-216-047-11	METAL GLAZE	820	5%	1/10W
R136	1-216-081-00	METAL CHIP	22K	5%	1/10W
R151	1-216-081-00	METAL CHIP	22K	5%	1/10W
R152	1-216-081-00	METAL CHIP	22K	5%	1/10W
R153	1-216-081-00	METAL CHIP	22K	5%	1/10W
R154	1-216-081-00	METAL CHIP	22K	5%	1/10W
R161	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R162	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R163	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R164	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R165	1-216-073-00	METAL CHIP	10K	5%	1/10W
R166	1-216-081-00	METAL CHIP	22K	5%	1/10W
R167	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R168	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R169	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R170	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R171	1-216-073-00	METAL CHIP	10K	5%	1/10W
R172	1-216-081-00	METAL CHIP	22K	5%	1/10W
R204	1-216-031-00	METAL CHIP	180	5%	1/10W
R205	1-216-031-00	METAL CHIP	180	5%	1/10W
R206	1-216-031-00	METAL CHIP	180	5%	1/10W
R207	1-216-031-00	METAL CHIP	180	5%	1/10W
R208	1-216-031-00	METAL CHIP	180	5%	1/10W
R209	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R210	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R211	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R212	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R301	1-216-041-00	METAL CHIP	470	5%	1/10W
R302	1-216-041-00	METAL CHIP	470	5%	1/10W
R303	1-216-022-00	METAL CHIP	75	5%	1/10W
		< SWITCH >			
S101	1-571-977-11	SWITCH, TACTILE (⏏)			
S102	1-571-977-11	SWITCH, TACTILE (◀◀ REW)			
S103	1-571-977-11	SWITCH, TACTILE (❚❚ PAUSE)			
S104	1-571-977-11	SWITCH, TACTILE (● REC)			
S105	1-571-977-11	SWITCH, TACTILE (TV/VTR)			
S106	1-571-977-11	SWITCH, TACTILE (TAPE SPEED)			
S107	1-571-977-11	SWITCH, TACTILE (PROGRAM +)			
S108	1-571-977-11	SWITCH, TACTILE (▶▶ FF)			

Ref. No.	Part No.	Description			Remark
S109	1-571-977-11	SWITCH, TACTILE (PROGRAM –)			
S110	1-571-977-11	SWITCH, TACTILE (TAPE RETURN)			
S111	1-571-977-11	SWITCH, TACTILE (COUNTER RESET)			
S112	1-571-977-11	SWITCH, TACTILE (AUDIO MONITOR)			
S113	1-571-977-11	SWITCH, TACTILE (EDIT)			
S114	1-571-977-11	SWITCH, TACTILE (STATUS)			
S115	1-571-977-11	SWITCH, TACTILE (VHS)			
S116	1-571-977-11	SWITCH, TACTILE (VIDEO)			
S117	1-571-977-11	SWITCH, TACTILE (AUDIO)			
S118	1-571-977-11	SWITCH, TACTILE (QUICK TIMER)			
S119	1-571-977-11	SWITCH, TACTILE (TIMER REC)			
S120	1-571-977-11	SWITCH, TACTILE (EASY SETUP)			
S121	1-571-977-11	SWITCH, TACTILE (RF CHANNEL)			
S122	1-571-977-11	SWITCH, TACTILE (AUDIO DUB)			
S131	1-572-561-11	SWITCH, SLIDE (COMMAND MODE VTR1/2/3)			
S132	1-572-559-21	SWITCH, SLIDE (STANDBY DISPLAY)			
		< VIBRATOR >			
X101	1-760-995-11	VIBRATOR, CERAMIC (16MHz)			

Ref. No.	Part No.	Description			Remark
*	1-663-356-11	FR-112 BOARD ************			
					(Ref.No.3,000 series)
		< CONNECTOR >			
* CN201	1-565-295-11	PLUG, CONNECTOR 4P			
		< DIODE >			
D201	8-719-056-06	LED SLR-342DC3F (SURROUND)			
		< RESISTOR >			
R201	1-216-031-00	METAL CHIP	180	5%	1/10W
		< SWITCH >			
S201	1-571-977-11	SWITCH, TACTILE (MUTING)			
S202	1-571-977-11	SWITCH, TACTILE (SURROUND)			

Ref. No.	Part No.	Description			Remark
*	1-663-354-11	HP-94 BOARD ************			
					(Ref.No.5,000 series)
		< CAPACITOR >			
C401	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C402	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C403	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C404	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C405	1-163-031-11	CERAMIC CHIP	0.01uF		50V

HP-94 IO-56

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CN401	1-506-468-11	PIN, CONNECTOR 3P			
CN402	1-506-468-11	PIN, CONNECTOR 3P			
		< JACK >			
CNJ401	1-507-854-00	JACK, PHONE (PHONES)			
		< DIODE >			
D401	8-719-422-62	DIODE MA8062-L-TX			
		< COIL >			
L401	1-410-525-11	INDUCTOR 220uH			
L402	1-410-525-11	INDUCTOR 220uH			
		< RESISTOR >			
R401	1-216-295-00	METAL CHIP	0	5%	1/10W
R402	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref. No.	Part No.	Description			Remark
*	A-6794-259-A	IO-56 BOARD, COMPLETE (UX)			
*	A-6794-280-A	IO-56 BOARD, COMPLETE (VC,B,NP)			
		*********************			
		(Ref.No.7,000 series)			
		< CAPACITOR >			
C101	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C102	1-126-786-11	ELECT	47uF	20%	16V (VC,B,NP)
C103	1-163-031-11	CERAMIC CHIP	0.01uF		50V (VC,B,NP)
C104	1-163-031-11	CERAMIC CHIP	0.01uF		50V (VC,B,NP)
C105	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C106	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C107	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C108	1-126-786-11	ELECT	47uF	20%	16V (VC,B,NP)
C109	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C110	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C111	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C112	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)

Ref. No.	Part No.	Description			Remark
C113	1-107-682-11	CERAMIC CHIP	1uF	10%	16V (VC,B,NP)
C114	1-115-871-11	ELECT	1uF	20%	50V (VC,B,NP)
C115	1-115-871-11	ELECT	1uF	20%	50V (VC,B,NP)
C116	1-115-871-11	ELECT	1uF	20%	50V (VC,B,NP)
C117	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C118	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C119	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C120	1-126-796-11	ELECT	22uF	20%	25V (VC,B,NP)
C122	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C123	1-164-336-11	CERAMIC CHIP	0.33uF		25V (VC,B,NP)
C124	1-126-786-11	ELECT	47uF	20%	16V (VC,B,NP)
C125	1-126-786-11	ELECT	47uF	20%	16V
C126	1-115-872-00	ELECT	2.2uF	20%	50V
C127	1-115-872-00	ELECT	2.2uF	20%	50V
C128	1-115-872-00	ELECT	2.2uF	20%	50V
C132	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C133	1-126-786-11	ELECT	47uF	20%	16V
C134	1-126-935-11	ELECT	470uF	20%	16V
C135	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C138	1-115-872-00	ELECT	2.2uF	20%	50V
C149	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C153	1-115-871-11	ELECT	1uF	20%	50V
C154	1-115-871-11	ELECT	1uF	20%	50V
C155	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C156	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C159	1-124-584-00	ELECT	100uF	20%	10V
C461	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C462	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C463	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C464	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C610	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C681	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C682	1-126-786-11	ELECT	47uF	20%	16V
C683	1-126-935-11	ELECT	470uF	20%	16V
		< JACK >			
CJ101	1-565-933-11	JACK, PIN 3P (VIDEO) (VC,B,NP)			
CJ101	1-573-144-11	JACK, PIN 2P (VIDEO) (UX)			
CJ601	1-568-016-11	SOCKET, PIN 21P (VIDEO OUT/EURO TV)			
CJ775	1-568-016-11	SOCKET, PIN 21P (CANAL+)			

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN101	1-573-733-11	PIN, CONNECTOR 6P	
CN102	1-573-739-21	PIN, CONNECTOR 12P	
CN103	1-573-741-11	PIN, CONNECTOR 14P	
CN104	1-770-524-41	CONNECTOR, FFC/FPC 17P	
CN105	1-506-482-11	PIN, CONNECTOR 3P	
CN106	1-774-487-41	CONNECTOR, FFC/FPC 21P	
		< DIODE >	
D101	8-719-016-73	DIODE STZ6.8T (VC,B,NP)	
D102	8-719-016-73	DIODE STZ6.8T	
D103	8-719-016-73	DIODE STZ6.8T (VC,B,NP)	
D104	8-719-104-34	DIODE 1S2836	
D105	8-719-016-73	DIODE STZ6.8T	
D106	8-719-914-42	DIODE DA204K	
D107	8-719-914-42	DIODE DA204K (VC,B,NP)	
D110	8-719-400-94	DIODE MA3130	
D111	8-719-400-75	DIODE MA3091	
D112	8-719-400-75	DIODE MA3091	
D113	8-719-016-73	DIODE STZ6.8T	
D114	8-719-016-73	DIODE STZ6.8T	
D115	8-719-016-73	DIODE STZ6.8T	
D116	8-719-016-73	DIODE STZ6.8T	
D117	8-719-210-33	DIODE EC10DS2 (VC,B,NP)	
D118	8-719-016-73	DIODE STZ6.8T	
D119	8-719-016-73	DIODE STZ6.8T	
D601	8-719-016-73	DIODE STZ6.8T	
D603	8-719-400-94	DIODE MA3130	
D604	8-719-400-75	DIODE MA3091	
D606	8-719-016-73	DIODE STZ6.8T	
D610	8-719-104-34	DIODE 1S2836	
		< FILTER >	
FL101	1-236-163-11	ENCAPSULATED COMPONENT (VC,B,NP)	
FL102	1-236-163-11	ENCAPSULATED COMPONENT	
FL103	1-236-163-11	ENCAPSULATED COMPONENT (VC,B,NP)	
FL104	1-236-163-11	ENCAPSULATED COMPONENT	
FL611	1-236-163-11	ENCAPSULATED COMPONENT	
FL615	1-236-163-11	ENCAPSULATED COMPONENT	
		< IC >	
IC101	8-759-445-69	IC BA7632AF (VC,B,NP)	
IC102	8-759-445-69	IC BA7632AF (VC,B,NP)	
IC103	8-759-280-24	IC BA7630F-E2 (VC,B,NP)	
IC104	8-759-431-32	IC BA7626F-E2	
IC106	8-759-296-72	IC PQ12SZ5U (VC,B,NP)	
IC108	8-759-711-10	IC NJU4066BM	
IC461	8-759-295-66	IC BA7653AF-E2	
		< JUMPER RESISTOR >	
JS101	1-216-296-00	CONDUCTOR, CHIP (3216) (UX)	
JS102	1-216-295-00	CONDUCTOR, CHIP (2012) (UX)	
JS103	1-216-295-00	CONDUCTOR, CHIP (2012) (UX)	
JS104	1-216-295-00	CONDUCTOR, CHIP (2012) (UX)	
JS105	1-216-295-00	CONDUCTOR, CHIP (2012) (VC,B,NP)	
JS106	1-216-295-00	CONDUCTOR, CHIP (2012) (UX)	
JS107	1-216-295-00	CONDUCTOR, CHIP (2012) (VC,B,NP)	
JS108	1-216-295-00	CONDUCTOR, CHIP (2012) (VC,B,NP)	
JS109	1-216-295-00	CONDUCTOR, CHIP (2012) (UX)	
JS110	1-216-295-00	CONDUCTOR, CHIP (2012) (UX)	
JS112	1-216-295-00	CONDUCTOR, CHIP (2012)	
		< COIL >	
L101	1-408-417-00	INDUCTOR 47uH (VC,B,NP)	
L102	1-408-421-00	INDUCTOR 100uH	
L103	1-408-421-00	INDUCTOR 100uH	
L461	1-408-421-00	INDUCTOR 100uH	
L651	1-408-421-00	INDUCTOR 100uH	
		< TRANSISTOR >	
Q101	8-729-120-28	TRANSISTOR 2SC1623-L5L6 (VC,B,NP)	
Q102	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R (VC,B,NP)	
Q103	8-729-120-28	TRANSISTOR 2SC1623-L5L6 (VC,B,NP)	
Q104	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R (VC,B,NP)	
Q105	8-729-216-22	TRANSISTOR 2SA1162-G	
Q108	8-729-421-19	TRANSISTOR UN2213	
Q131	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q481	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q601	8-729-901-47	TRANSISTOR DTA143EK	
Q602	8-729-027-59	TRANSISTOR DTC144EKA-T146	
Q681	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR >	
R101	1-216-025-00	METAL GLAZE 100 5% 1/10W	(VC,B,NP)
R102	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	(VC,B,NP)
R103	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	(VC,B,NP)
R104	1-208-766-11	METAL GLAZE 220 0.50% 1/10W	(VC,B,NP)
R105	1-208-766-11	METAL GLAZE 220 0.50% 1/10W	(VC,B,NP)
R106	1-216-025-00	METAL GLAZE 100 5% 1/10W	(VC,B,NP)

IO-56 IO-57

Ref. No.	Part No.	Description			Remark
R107	1-216-025-00	METAL GLAZE	100	5%	1/10W (VC,B,NP)
R108	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W (VC,B,NP)
R109	1-216-043-00	METAL GLAZE	560	5%	1/10W (VC,B,NP)
R110	1-216-073-00	METAL CHIP	10K	5%	1/10W (VC,B,NP)
R111	1-216-049-11	METAL GLAZE	1K	5%	1/10W (VC,B,NP)
R112	1-216-041-00	METAL CHIP	470	5%	1/10W
R113	1-216-025-00	METAL GLAZE	100	5%	1/10W (VC,B,NP)
R114	1-216-049-11	METAL GLAZE	1K	5%	1/10W (VC,B,NP)
R115	1-216-025-00	METAL GLAZE	100	5%	1/10W (VC,B,NP)
R116	1-216-022-00	METAL CHIP	75	5%	1/10W (VC,B,NP)
R117	1-216-212-00	METAL GLAZE	3.9K	5%	1/8W (VC,B,NP)
R118	1-216-043-00	METAL GLAZE	560	5%	1/10W (VC,B,NP)
R119	1-216-041-00	METAL CHIP	470	5%	1/10W
R120	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R121	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R122	1-216-022-00	METAL CHIP	75	5%	1/10W
R123	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R125	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R126	1-216-025-00	METAL GLAZE	100	5%	1/10W
R128	1-216-178-00	METAL GLAZE	150	5%	1/8W
R129	1-216-180-00	METAL GLAZE	180	5%	1/8W
R130	1-208-782-11	METAL GLAZE	1K	0.50%	1/10W
R131	1-216-021-00	METAL CHIP	68	5%	1/10W
R133	1-208-782-11	METAL GLAZE	1K	0.50%	1/10W
R134	1-208-783-11	METAL GLAZE	1.1K	0.50%	1/10W
R135	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R136	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R137	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R138	1-216-022-00	METAL CHIP	75	5%	1/10W
R139	1-216-022-00	METAL CHIP	75	5%	1/10W (VC,B,NP)
R140	1-216-192-00	METAL CHIP	560	5%	1/8W
R141	1-216-025-00	METAL GLAZE	100	5%	1/10W
R150	1-208-782-11	METAL GLAZE	1K	0.50%	1/10W
R154	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R155	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R158	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R159	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R160	1-216-073-00	METAL CHIP	10K	5%	1/10W
R461	1-216-295-00	CONDUCTOR, CHIP(2012)			
R462	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R481	1-216-025-00	METAL GLAZE	100	5%	1/10W
R482	1-216-192-00	METAL CHIP	560	5%	1/8W
R601	1-216-022-00	METAL CHIP	75	5%	1/10W
R602	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R603	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R611	1-216-041-00	METAL CHIP	470	5%	1/10W
R612	1-216-041-00	METAL CHIP	470	5%	1/10W
R681	1-216-025-00	METAL GLAZE	100	5%	1/10W
R683	1-216-178-00	METAL GLAZE	150	5%	1/8W
R684	1-216-180-00	METAL GLAZE	180	5%	1/8W
R685	1-216-021-00	METAL CHIP	68	5%	1/10W
		< SWITCH >			
S901	1-572-885-11	SWITCH, SLIDE (NTSC PB)			

*	A-6794-276-A	IO-57 BOARD, COMPLETE (UX)			
*	A-6794-282-A	IO-57 BOARD, COMPLETE (VC,B,NP)			
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			(Ref.No.7,000 series)		
		< CAPACITOR >			
C301	1-164-159-11	CERAMIC	0.1uF		50V
C302	1-126-967-11	ELECT	47uF	20%	16V
C303	1-162-286-31	CERAMIC	220PF	10%	50V
C304	1-162-286-31	CERAMIC	220PF	10%	50V
C305	1-162-306-11	CERAMIC	0.01uF	30%	16V
C306	1-162-291-31	CERAMIC	560PF	10%	50V
C307	1-162-294-31	CERAMIC	0.001uF	10%	50V
C308	1-164-159-11	CERAMIC	0.1uF		50V
C309	1-126-967-11	ELECT	47uF	20%	16V
C310	1-126-967-11	ELECT	47uF	20%	16V
C312	1-162-306-11	CERAMIC	0.01uF	30%	16V
C313	1-162-306-11	CERAMIC	0.01uF	30%	16V
C314	1-126-967-11	ELECT	47uF	20%	16V
C320	1-164-159-11	CERAMIC	0.1uF		50V
C321	1-164-159-11	CERAMIC	0.1uF		50V
		< JACK >			
CJ301	1-695-188-31	JACK, PIN 4P (AUDIO (TAPE/MD IN, VIDEO1 IN)) (UX)			
CJ301	1-774-411-11	JACK, PIN 6P (AUDIO (TAPE/MD IN, VIDEO1 IN, LINE IN))(VC,B,NP)			
CJ302	1-774-411-11	JACK, PIN 6P (AUDIO (TUNER IN,CD IN, TAPE MD REC OUT))			
		< CONNECTOR >			
CN301	1-774-487-41	CONNECTOR, FFC/FPC 21P			
CN302	1-770-514-41	CONNECTOR, FFC/FPC 5P			

Ref. No.	Part No.	Description				Remark
CN303	1-774-477-41	CONNECTOR, FFC/FPC 11P				
		< FILTER >				
FL301	1-236-163-11	ENCAPSULATED COMPONENT				
FL302	1-236-163-11	ENCAPSULATED COMPONENT				
FL303	1-236-163-11	ENCAPSULATED COMPONENT				
FL304	1-236-163-11	ENCAPSULATED COMPONENT				
FL305	1-236-163-11	ENCAPSULATED COMPONENT				
FL306	1-236-163-11	ENCAPSULATED COMPONENT				
FL307	1-236-163-11	ENCAPSULATED COMPONENT				
FL308	1-236-163-11	ENCAPSULATED COMPONENT				
FL309	1-236-163-11	ENCAPSULATED COMPONENT				
FL310	1-236-163-11	ENCAPSULATED COMPONENT				
FL311	1-236-163-11	ENCAPSULATED COMPONENT (VC,B,NP)				
FL312	1-236-163-11	ENCAPSULATED COMPONENT (VC,B,NP)				
		< IC >				
IC301	8-759-700-65	IC NJM79L05A				
IC302	8-759-145-58	IC uPC4558C				
IC303	8-759-805-14	IC LC7822				
IC304	8-759-208-08	IC TC4052BPHB				
		< RESISTOR >				
R301	1-249-417-11	CARBON	1K	5%	1/4W	F
R302	1-249-417-11	CARBON	1K	5%	1/4W	F
R303	1-249-417-11	CARBON	1K	5%	1/4W	F
R304	1-249-417-11	CARBON	1K	5%	1/4W	F
R308	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R309	1-249-429-11	CARBON	10K	5%	1/4W	
R310	1-249-429-11	CARBON	10K	5%	1/4W	
R311	1-249-417-11	CARBON	1K	5%	1/4W	F (VC,B,NP)
R312	1-249-417-11	CARBON	1K	5%	1/4W	F (VC,B,NP)
R313	1-249-417-11	CARBON	1K	5%	1/4W	F
R314	1-249-417-11	CARBON	1K	5%	1/4W	F
R315	1-249-417-11	CARBON	1K	5%	1/4W	F
R316	1-249-417-11	CARBON	1K	5%	1/4W	F
R317	1-249-417-11	CARBON	1K	5%	1/4W	F
R318	1-249-417-11	CARBON	1K	5%	1/4W	F
R319	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R320	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R321	1-249-417-11	CARBON	1K	5%	1/4W	F
R322	1-249-417-11	CARBON	1K	5%	1/4W	F
R325	1-249-441-11	CARBON	100K	5%	1/4W	
R326	1-249-441-11	CARBON	100K	5%	1/4W	
R327	1-249-441-11	CARBON	100K	5%	1/4W	
R328	1-249-441-11	CARBON	100K	5%	1/4W	
R329	1-249-441-11	CARBON	100K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R330	1-249-441-11	CARBON	100K	5%	1/4W	

*	A-6796-514-A	MA-283 BOARD, COMPLETE (UX)				
*	A-6796-518-A	MA-283 BOARD, COMPLETE (VC)				
*	A-6796-519-A	MA-283 BOARD, COMPLETE (B)				
*	A-6796-521-A	MA-283 BOARD, COMPLETE (NP)				
		***********************				
			(Ref.No.2,000 series)			
		< BUZZER >				
BZ151	1-529-104-11	BUZZER, PIEZOELECTRIC				
		< CAPACITOR >				
C101	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C102	1-126-967-11	ELECT	47uF	20%	16V	
C103	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V	
C104	1-124-234-00	ELECT	22uF	20%	16V	
C105	1-124-584-00	ELECT	100uF	20%	10V	
C106	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C107	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V	
C108	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V	
C109	1-124-257-00	ELECT	2.2uF	20%	50V	
C111	1-124-257-00	ELECT	2.2uF	20%	50V	
C114	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	
C131	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C132	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	
C133	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C135	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C136	1-126-157-11	ELECT	10uF	20%	16V	
C139	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C151	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C152	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C153	1-164-346-11	CERAMIC CHIP	1uF		16V	
C154	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C155	1-163-231-11	CERAMIC CHIP	15PF	5%	50V	
C156	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C157	1-164-346-11	CERAMIC CHIP	1uF		16V	
C158	1-128-057-11	ELECT	330uF	20%	6.3V	
C159	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C160	1-125-705-11	DOUBLE LAYERS	0.22F		5.5V	
C161	1-128-057-11	ELECT	330uF	20%	6.3V	
C162	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C163	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C164	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V	
C166	1-126-916-11	ELECT	1000uF	20%	6.3V	
C201	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	
C202	1-164-346-11	CERAMIC CHIP	1uF		16V	
C203	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	

MA-283

Ref. No.	Part No.	Description			Remark
C204	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C205	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C206	1-164-346-11	CERAMIC CHIP	1uF		16V
C207	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C208	1-124-584-00	ELECT	100uF	20%	10V
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C301	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C302	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C303	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C304	1-124-589-11	ELECT	47uF	20%	16V
C305	1-124-589-11	ELECT	47uF	20%	16V
C306	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C307	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C308	1-126-096-11	ELECT	10uF	20%	35V
C309	1-124-589-11	ELECT	47uF	20%	16V
C310	1-124-257-00	ELECT	2.2uF	20%	50V
C311	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C312	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C313	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C314	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C315	1-124-589-11	ELECT	47uF	20%	16V
C316	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C317	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C318	1-126-160-11	ELECT	1uF	20%	50V
C319	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C320	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C322	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V (B)
C323	1-107-714-11	ELECT	10uF	20%	16V (B)
C352	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C353	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C354	1-124-589-11	ELECT	47uF	20%	16V
C356	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C357	1-163-117-00	CERAMIC CHIP	100PF	5%	50V (B)
C357	1-163-127-00	CERAMIC CHIP	270PF	5%	50V (UX,VC,NP)
C358	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C359	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C360	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C401	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C402	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C404	1-163-239-11	CERAMIC CHIP	33PF	5%	50V (B)
C405	1-163-241-11	CERAMIC CHIP	39PF	5%	50V (B)
C406	1-126-176-11	ELECT	220uF	20%	10V
C407	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C408	1-164-505-11	CERAMIC CHIP	2.2uF		16V

Ref. No.	Part No.	Description			Remark
C409	1-126-176-11	ELECT	220uF	20%	10V
C410	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C411	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C412	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C413	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C414	1-124-584-00	ELECT	100uF	20%	10V
C416	1-124-257-00	ELECT	2.2uF	20%	50V
C417	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C418	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C419	1-124-589-11	ELECT	47uF	20%	16V
C420	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C421	1-162-306-11	CERAMIC	0.01uF	20%	16V
C422	1-126-160-11	ELECT	1uF	20%	50V
C423	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C424	1-124-589-11	ELECT	47uF	20%	16V
C425	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C427	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C441	1-163-031-11	CERAMIC CHIP	0.01uF		50V (B)
C442	1-163-031-11	CERAMIC CHIP	0.01uF		50V (B)
C443	1-126-967-11	ELECT	47uF	20%	16V (B)
C451	1-124-589-11	ELECT	47uF	20%	16V (B)
C452	1-126-967-11	ELECT	47uF	20%	16V (B)
C455	1-163-125-00	CERAMIC CHIP	220PF	5%	50V (B)
C501	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C502	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C503	1-124-589-11	ELECT	47uF	20%	16V
C510	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C520	1-126-162-11	ELECT	3.3uF	20%	50V
C521	1-126-096-11	ELECT	10uF	20%	35V
C522	1-137-372-11	FILM	0.022uF	5%	50V
C523	1-126-163-11	ELECT	4.7uF	20%	50V
C524	1-124-589-11	ELECT	47uF	20%	16V
C525	1-137-370-11	FILM	0.01uF	5%	50V
C530	1-126-162-11	ELECT	3.3uF	20%	50V
C531	1-126-096-11	ELECT	10uF	20%	35V
C532	1-137-372-11	FILM	0.022uF	5%	50V
C533	1-126-963-11	ELECT	4.7uF	20%	50V
C534	1-124-589-11	ELECT	47uF	20%	16V
C535	1-137-370-11	FILM	0.01uF	5%	50V
C541	1-137-372-11	FILM	0.022uF	5%	50V
C542	1-124-584-00	ELECT	100uF	20%	10V
C551	1-124-234-00	ELECT	22uF	20%	16V
C552	1-124-234-00	ELECT	22uF	20%	16V
C561	1-126-160-11	ELECT	1uF	20%	50V

Ref. No.	Part No.	Description			Remark
C562	1-137-370-11	FILM	0.01uF	5%	50V
C563	1-126-163-11	ELECT	4.7uF	20%	50V
C565	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C566	1-163-014-00	CERAMIC CHIP	0.0027uF	5%	50V
C571	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C572	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C580	1-124-257-00	ELECT	2.2uF	20%	50V
C591	1-124-584-00	ELECT	100uF	20%	10V
C592	1-124-584-00	ELECT	100uF	20%	10V
C593	1-124-589-11	ELECT	47uF	20%	16V
C701	1-126-967-11	ELECT	47uF	20%	16V
C702	1-126-964-11	ELECT	10uF	20%	50V
C703	1-126-964-11	ELECT	10uF	20%	50V
C704	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C705	1-126-964-11	ELECT	10uF	20%	50V
C706	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C707	1-126-933-11	ELECT	100uF	20%	16V
C708	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C713	1-126-967-11	ELECT	47uF	20%	16V
C714	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C716	1-126-964-11	ELECT	10uF	20%	50V
C717	1-126-964-11	ELECT	10uF	20%	50V
C718	1-128-551-11	ELECT	22uF	20%	25V
C881	1-137-612-11	FILM	0.0068uF	5%	100V
C882	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C883	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C884	1-126-933-11	ELECT	100uF	20%	16V
C885	1-137-431-11	FILM	560PF	5%	50V
C891	1-104-697-11	FILM	0.047uF	5%	100V
C892	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C893	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C894	1-124-455-00	ELECT	100uF	20%	16V
		< CONNECTOR >			
CN101	1-506-468-11	PIN, CONNECTOR 3P			
CN301	1-766-718-11	CONNECTOR, BOARD TO BOARD 17P			
CN302	1-506-477-11	PIN, CONNECTOR 12P			
CN451	1-573-845-11	CONNECTOR, BOARD TO BOARD 13P (B)			
* CN501	1-766-600-11	CONNECTOR, BOARD TO BOARD 7P			
CN502	1-573-852-11	CONNECTOR, BOARD TO BOARD 20P			
CN503	1-506-469-11	PIN, CONNECTOR 4P			
CN506	1-506-480-11	PIN, CONNECTOR 15P			
CN701	1-573-130-21	PIN, CONNECTOR 7P			
* CN851	1-560-892-00	PIN, CONNECTOR 4P			
* CN881	1-560-891-00	PIN, CONNECTOR 3P			
CN901	1-506-479-11	PIN, CONNECTOR 14P			
CN902	1-766-799-11	CONNECTOR, BOARD TO BOARD 12P			
CN903	1-770-526-41	CONNECTOR, FFC/FPC 19P			
CN904	1-766-799-11	CONNECTOR, BOARD TO BOARD 12P			

Ref. No.	Part No.	Description	Remark
* CN907	1-573-731-21	PIN, CONNECTOR 4P	
		< DIODE >	
D151	8-719-200-82	DIODE 11ES2	
D152	8-719-200-82	DIODE 11ES2	
D201	8-719-200-82	DIODE 11ES2	
D202	8-719-801-48	DIODE 1SS193	
D204	8-719-801-48	DIODE 1SS193 (B)	
D301	8-719-911-19	DIODE 1SS119-25	
D401	8-719-801-78	DIODE 1SS184 (B)	
D402	8-719-801-48	DIODE 1SS193	
D591	8-719-404-46	DIODE MA110	
⚠D702	8-719-800-76	DIODE 1SS226	
D703	8-719-110-78	DIODE RD33ES-B2	
D708	8-719-911-19	DIODE 1SS119-25	
D902	8-719-200-82	DIODE 11ES2	
		< EARTH TERMINAL >	
* EP101	1-537-738-21	TERMINAL, EARTH	
* EP102	1-537-738-21	TERMINAL, EARTH	
		< IC >	
IC101	8-759-246-14	IC TA8823N	
IC131	8-759-289-73	IC SDA5649X-GEG	
IC151	8-752-866-83	IC CXP82960-013Q	
IC152	8-759-248-87	IC MM1256XF-BE	
IC153	8-759-278-56	IC AK6440HF-E2	
IC201	8-752-865-45	IC CXP87248A-019Q	
IC301	1-801-153-11	IC YC MODULE, 3 (PAL)	
IC302	8-759-164-09	IC LA7218M	
IC401	8-759-437-21	IC MB90089PF-G-171-BND-ER	
IC402	8-759-164-09	IC LA7218M	
IC441	1-810-636-11	IC LA7356M (B)	
IC501	8-759-365-32	IC XLH7779K-VP	
IC551	8-759-089-84	IC BA7755AF	
		< JUMPER RESISTOR >	
JR001	1-216-295-00	CONDUCTOR, CHIP	(2012)
JR002	1-216-296-00	CONDUCTOR, CHIP	(3216)
JR003	1-216-296-00	CONDUCTOR, CHIP	(3216)
JR004	1-216-296-00	CONDUCTOR, CHIP	(3216)
JR005	1-216-296-00	CONDUCTOR, CHIP	(3216)
JR006	1-216-296-00	CONDUCTOR, CHIP	(3216)
JR007	1-216-296-00	CONDUCTOR, CHIP	(3216)
		< JUMPER RESISTOR >	
JS095	1-216-295-00	CONDUCTOR, CHIP	(2012)
JS096	1-216-295-00	CONDUCTOR, CHIP	(2012)

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

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Ref. No.	Part No.	Description	Remark
JS103	1-216-295-00	CONDUCTOR, CHIP	(2012)
JS301	1-216-295-00	CONDUCTOR, CHIP	(2012) (B)
JS321	1-216-295-00	CONDUCTOR, CHIP	(2012) (B)
JS404	1-216-295-00	CONDUCTOR, CHIP	(2012)
JS405	1-216-295-00	CONDUCTOR, CHIP	(2012)
JS505	1-216-295-00	CONDUCTOR, CHIP	(2012) (UX)
JS506	1-216-295-00	CONDUCTOR, CHIP	(2012) (UX)
JS895	1-216-295-00	CONDUCTOR, CHIP	(2012)
		< COIL >	
L101	1-408-421-00	INDUCTOR 100uH	
L151	1-408-970-21	INDUCTOR 10uH	
L201	1-408-970-21	INDUCTOR 10uH	
L301	1-410-522-11	INDUCTOR 120uH	
L302	1-414-186-31	INDUCTOR 33uH	
L303	1-414-186-31	INDUCTOR 33uH	
L304	1-408-977-21	INDUCTOR 39uH	
L305	1-414-186-31	INDUCTOR 33uH	
L306	1-410-516-11	INDUCTOR 39uH (B)	
L307	1-408-421-00	INDUCTOR 100uH	
L351	1-410-525-41	INDUCTOR 220uH	
L352	1-414-189-31	INDUCTOR 100uH	
L353	1-410-513-11	INDUCTOR 22uH	
L401	1-408-421-00	INDUCTOR 100uH	
L402	1-410-515-11	INDUCTOR 33uH (B)	
L403	1-412-470-21	INDUCTOR 22uH	
L404	1-408-421-00	INDUCTOR 100uH	
L444	1-414-189-31	INDUCTOR 100uH (B)	
L451	1-414-186-31	INDUCTOR 33uH (B)	
L701	1-414-183-41	INDUCTOR 10uH	
L702	1-414-189-31	INDUCTOR 100uH	
L703	1-414-183-41	INDUCTOR 10uH	
L705	1-414-183-41	INDUCTOR 10uH	
L881	1-410-687-11	INDUCTOR 1.2mH	
L891	1-410-687-11	INDUCTOR 1.2mH	
		< IC LINK >	
⚠PS885	1-532-727-11	LINK, IC 0.25A (ICP-N5)	
		< POSITIVE THERMISTOR >	
⚠PTH592	1-202-855-00	THERMISTOR, POSITIVE	
		< TRANSISTOR >	
Q131	8-729-216-22	TRANSISTOR 2SA1162-G	
Q201	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q202	8-729-901-06	TRANSISTOR DTA144EK	
Q303	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q305	8-729-901-06	TRANSISTOR DTA144EK	

Ref. No.	Part No.	Description			Remark
Q306	8-729-901-01	TRANSISTOR DTC144EK			
Q322	8-729-901-01	TRANSISTOR DTC144EK (B)			
Q323	8-729-901-06	TRANSISTOR DTA144EK			
Q324	8-729-901-06	TRANSISTOR DTA144EK			
Q352	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q353	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q401	8-729-901-01	TRANSISTOR DTC144EK (B)			
Q405	8-729-120-28	TRANSISTOR 2SC1623-L5L6 (B)			
Q406	8-729-216-22	TRANSISTOR 2SA1162-G			
Q407	8-729-216-22	TRANSISTOR 2SA1162-G			
Q413	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q451	8-729-901-06	TRANSISTOR DTA144EK			
Q455	8-729-901-01	TRANSISTOR DTC144EK (B)			
Q456	8-729-901-01	TRANSISTOR DTC144EK (B)			
Q522	8-729-901-01	TRANSISTOR DTC144EK			
Q532	8-729-901-01	TRANSISTOR DTC144EK			
Q591	8-729-804-41	TRANSISTOR 2SB1122-S			
Q592	8-729-015-11	TRANSISTOR 2SD1802FAST-TL			
Q593	8-729-901-06	TRANSISTOR DTA144EK			
Q701	8-729-901-01	TRANSISTOR DTC144EK			
⚠Q703	8-729-173-38	TRANSISTOR 2SA733-K			
Q710	8-729-216-22	TRANSISTOR 2SA1162-G			
Q711	8-729-900-98	TRANSISTOR DTC143TK			
Q712	8-729-900-98	TRANSISTOR DTC143TK			
Q713	8-729-900-98	TRANSISTOR DTC143TK			
Q714	8-729-216-22	TRANSISTOR 2SA1162-G			
Q881	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q			
Q882	8-729-900-51	TRANSISTOR DTA114TK			
Q886	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q891	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q			
Q892	8-729-900-51	TRANSISTOR DTA114TK			
		< RESISTOR >			
R101	1-216-119-00	METAL CHIP	820K	5%	1/10W
R102	1-216-093-00	METAL CHIP	68K	5%	1/10W
R103	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R104	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R105	1-216-085-00	METAL CHIP	33K	5%	1/10W
R106	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R107	1-216-186-00	METAL GLAZE	330	5%	1/8W
R108	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R111	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R113	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R133	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R134	1-216-117-00	METAL CHIP	680K	5%	1/10W
R135	1-216-123-11	METAL CHIP	1.2M	5%	1/10W
R136	1-216-069-00	METAL CHIP	6.8K	5%	1/10W

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Ref. No.	Part No.	Description			Remark
R137	1-216-123-11	METAL CHIP	1.2M	5%	1/10W
R138	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R139	1-216-025-00	METAL GLAZE	100	5%	1/10W
R140	1-216-079-00	METAL CHIP	18K	5%	1/10W
R141	1-216-083-00	METAL CHIP	27K	5%	1/10W
R142	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R143	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R152	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R153	1-216-113-00	METAL CHIP	470K	5%	1/10W
R154	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R157	1-216-113-00	METAL CHIP	470K	5%	1/10W
R158	1-216-095-00	METAL CHIP	82K	5%	1/10W
R159	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R160	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R161	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R162	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R163	1-216-073-00	METAL CHIP	10K	5%	1/10W
R164	1-216-073-00	METAL CHIP	10K	5%	1/10W
R165	1-216-073-00	METAL CHIP	10K	5%	1/10W
R166	1-216-073-00	METAL CHIP	10K	5%	1/10W
R167	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R169	1-216-113-00	METAL CHIP	470K	5%	1/10W
R170	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R171	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-073-00	METAL CHIP	10K	5%	1/10W
R183	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R186	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R187	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R188	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R189	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R203	1-216-073-00	METAL CHIP	10K	5%	1/10W
R204	1-216-073-00	METAL CHIP	10K	5%	1/10W
R205	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R208	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-216-107-00	METAL CHIP	270K	5%	1/10W
R212	1-216-095-00	METAL CHIP	82K	5%	1/10W
R213	1-216-077-00	METAL CHIP	15K	5%	1/10W
R214	1-216-085-00	METAL CHIP	33K	5%	1/10W
R215	1-216-095-00	METAL CHIP	82K	5%	1/10W
R218	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R219	1-216-089-00	METAL GLAZE	47K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R233	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R234	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R240	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R303	1-216-039-00	METAL CHIP	390	5%	1/10W
R304	1-208-798-11	METAL GLAZE	4.7K	0.50%	1/10W
R305	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R306	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R307	1-216-041-00	METAL CHIP	470	5%	1/10W
R308	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R309	1-216-073-00	METAL CHIP	10K	5%	1/10W
R310	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R311	1-216-045-00	METAL CHIP	680	5%	1/10W
R312	1-216-073-00	METAL CHIP	10K	5%	1/10W
R313	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R314	1-216-091-00	METAL CHIP	56K	5%	1/10W
R315	1-216-107-00	METAL CHIP	270K	5%	1/10W
R316	1-216-049-11	METAL GLAZE	1K	5%	1/10W
					(B)
R317	1-216-107-00	METAL CHIP	270K	5%	1/10W
R318	1-216-101-00	METAL CHIP	150K	5%	1/10W
R319	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R321	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
					(B)
R324	1-216-296-00	CONDUCTOR, CHIP		(3216)	(B)
R325	1-216-043-00	METAL GLAZE	560	5%	1/10W
R326	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R351	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R352	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R353	1-216-045-00	METAL CHIP	680	5%	1/10W
R354	1-216-081-00	METAL CHIP	22K	5%	1/10W
R355	1-216-081-00	METAL CHIP	22K	5%	1/10W
R356	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R357	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R358	1-216-041-00	METAL CHIP	470	5%	1/10W
R401	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R402	1-216-073-00	METAL CHIP	10K	5%	1/10W
					(B)
R403	1-216-073-00	METAL CHIP	10K	5%	1/10W
					(B)
R408	1-216-101-00	METAL CHIP	150K	5%	1/10W
R409	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R410	1-216-043-00	METAL GLAZE	560	5%	1/10W
R412	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R413	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R414	1-216-081-00	METAL CHIP	22K	5%	1/10W
R415	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R416	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R417	1-216-033-00	METAL CHIP	220	5%	1/10W
R418	1-216-033-00	METAL CHIP	220	5%	1/10W
R421	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R423	1-216-073-00	METAL CHIP	10K	5%	1/10W

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Ref. No.	Part No.	Description			Remark
R442	1-216-057-00	METAL CHIP	2.2K	5%	1/10W (B)
R443	1-216-070-00	METAL CHIP	7.5K	5%	1/10W (B)
R455	1-216-073-00	METAL CHIP	10K	5%	1/10W (B)
R501	1-216-079-00	METAL CHIP	18K	5%	1/10W
R502	1-216-079-00	METAL CHIP	18K	5%	1/10W
R503	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R504	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R505	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R506	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R507	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R510	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R514	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R515	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R521	1-216-073-00	METAL CHIP	10K	5%	1/10W
R522	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W
R523	1-216-079-00	METAL CHIP	18K	5%	1/10W
R524	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R525	1-208-809-11	METAL GLAZE	13K	0.50%	1/10W
R526	1-216-103-00	METAL CHIP	180K	5%	1/10W
R531	1-216-073-00	METAL CHIP	10K	5%	1/10W
R532	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W
R533	1-216-079-00	METAL CHIP	18K	5%	1/10W
R534	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R535	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W
R536	1-216-103-00	METAL CHIP	180K	5%	1/10W
R541	1-216-081-00	METAL CHIP	22K	5%	1/10W
R551	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R561	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R562	1-216-109-00	METAL CHIP	330K	5%	1/10W
R563	1-216-073-00	METAL CHIP	10K	5%	1/10W
R564	1-216-041-00	METAL CHIP	470	5%	1/10W
R565	1-216-099-00	METAL CHIP	120K	5%	1/10W
R566	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R567	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R571	1-216-081-00	METAL CHIP	22K	5%	1/10W
R572	1-216-083-00	METAL CHIP	27K	5%	1/10W
R573	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W
R575	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R580	1-216-073-00	METAL CHIP	10K	5%	1/10W
R591	1-247-843-11	CARBON	3.3K	5%	1/4W
R592	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R593	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R701	1-216-041-00	METAL CHIP	470	5%	1/10W
R702	1-216-041-00	METAL CHIP	470	5%	1/10W
R703	1-249-404-00	CARBON	82	5%	1/4W F

Ref. No.	Part No.	Description			Remark
R704	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R705	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R706	1-216-083-00	METAL CHIP	27K	5%	1/10W (UX,VC,NP)
R706	1-216-105-00	METAL GLAZE	220K	5%	1/10W (B)
R710	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R711	1-216-073-00	METAL CHIP	10K	5%	1/10W
R712	1-216-025-00	METAL GLAZE	100	5%	1/10W
R719	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R720	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R721	1-216-037-00	METAL CHIP	330	5%	1/10W
R725	1-216-049-11	METAL GLAZE	1K	5%	1/10W (B)
R727	1-216-049-11	METAL GLAZE	1K	5%	1/10W (B)
R738	1-216-025-00	METAL GLAZE	100	5%	1/10W
R739	1-216-025-00	METAL GLAZE	100	5%	1/10W
R881	1-216-081-00	METAL CHIP	22K	5%	1/10W
⚠R882	1-249-395-11	CARBON	15	5%	1/4W F
R885	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R886	1-216-073-00	METAL CHIP	10K	5%	1/10W
R887	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R891	1-216-083-00	METAL CHIP	27K	5%	1/10W
⚠R892	1-249-394-11	CARBON	12	5%	1/4W F
		< VARIABLE RESISTOR >			
RV521	1-241-763-11	RES, ADJ, CERMET 4.7K			
RV531	1-241-763-11	RES, ADJ, CERMET 4.7K			
RV541	1-241-764-11	RES, ADJ, CERMET 10K			
		< TRANSFORMER >			
T881	1-423-413-11	TRANSFORMER, BIAS OSCILLATION			
T891	1-423-415-11	TRANSFORMER, BIAS OSCILLATION			
		< TUNER >			
⚠TU701	1-693-267-22	TUNER, IF (BTF-3WC401) (VC)			
⚠TU701	1-693-269-22	TUNER, IF (BTF-3WC441) (B)			
⚠TU701	1-693-272-22	TUNER, IF (BTF-3WC411) (NP)			
⚠TU701	1-693-273-21	TUNER, IF (BTF-3WU601) (UX)			
		< VIBRATOR >			
X151	1-579-463-11	VIBRATOR, CRYSTAL (32kHz)			
X152	1-760-995-11	VIBRATOR, CERAMIC (16MHz)			
X201	1-760-494-11	VIBRATOR, CRYSTAL (16MHz)			
X301	1-577-165-11	VIBLATOR, CERAMIC (500kHz)			
X401	1-577-289-11	VIBRATOR, CRYSTAL (17MHz)			
X402	1-577-165-11	VIBLATOR, CERAMIC (500kHz)			

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
*	A-6794-266-A	MD-69 BOARD, COMPLETE			
		**********************			
		(Ref.No.2,000 series)			
*	3-960-273-01	SPACER, TOP END			
*	3-960-274-01	SPACER, LED			
		< CAPACITOR >			
C652	1-162-638-11	CERAMIC CHIP	1uF		16V
C653	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C654	1-124-589-11	ELECT	47uF	20%	16V
C655	1-130-489-00	MYLAR	0.033uF	5%	50V
C656	1-137-441-11	FILM	0.027uF	5%	50V
C661	1-126-176-11	ELECT	220uF	20%	10V
C662	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C664	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C666	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C667	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C673	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C675	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C691	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C692	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C694	1-124-455-00	ELECT	100uF	20%	16V
C695	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C696	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C697	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN650	1-766-796-11	CONNECTOR, BOARD TO BOARD 12P			
CN651	1-766-796-11	CONNECTOR, BOARD TO BOARD 12P			
* CN660	1-568-788-21	PIN, CONNECTOR 11P			
* CN671	1-766-538-11	CONNECTOR, BOARD TO BOARD 8P			
CN675	1-506-484-11	PIN, CONNECTOR 5P			
* CN681	1-766-537-11	CONNECTOR (HMD) 5P			
* CN691	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P			
		< DIODE >			
D651	8-719-801-48	DIODE 1SS193			
D661	8-719-048-26	LED GL528V1 (T/S LED)			
D665	8-719-921-54	DIODE MTZJ-6.2B			
D667	8-719-921-54	DIODE MTZJ-6.2B			
D671	8-719-200-82	DIODE 11ES2			
D691	8-719-977-24	DIODE DTZ9.1B			
		< IC >			
IC651	8-759-335-76	IC uPC5023GR-089-E2			
IC691	8-759-294-26	IC BA6209-V2			

Ref. No.	Part No.	Description			Remark	
		< JUMPER RESISTOR >				
JR602	1-216-295-00	CONDUCTOR, CHIP		(2012)		
JR603	1-216-296-00	CONDUCTOR, CHIP		(3216)		
JR604	1-216-296-00	CONDUCTOR, CHIP		(3216)		
JR605	1-216-295-00	CONDUCTOR, CHIP		(2012)		
		< JUMPER RESISTOR >				
JS653	1-216-295-00	CONDUCTOR, CHIP		(2012)		
		< PHOTO INTERRUPTER >				
PH661	8-749-010-19	PHOTO INTERRUPTER GP3S113 (S REEL)				
PH662	8-749-010-20	PHOTO INTERRUPTER GP3S114 (T REEL)				
		< IC LINK >				
⚠PS671	1-532-727-11	LINK, IC 0.25A (ICP-N5)				
		< TRANSISTOR >				
Q661	8-729-025-92	PHOTO TRANSISTOR PT380F (T SENS)				
Q662	8-729-025-92	PHOTO TRANSISTOR PT380F (S SENS)				
Q663	8-729-281-53	TRANSISTOR 2SC1815-GR				
		< RESISTOR >				
R651	1-216-049-11	METAL GLAZE	1K	5%	1/10W	
R652	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R653	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R654	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R655	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R656	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R661	1-249-400-11	CARBON	39	5%	1/4W	F
R662	1-249-400-11	CARBON	39	5%	1/4W	F
R663	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R664	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R665	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R666	1-249-413-11	CARBON	470	5%	1/4W	F
R667	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R668	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R671	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R674	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R675	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R676	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R677	1-216-068-00	METAL CHIP	6.2K	5%	1/10W	
R678	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R681	1-216-238-00	METAL GLAZE	47K	5%	1/8W	
R682	1-216-238-00	METAL GLAZE	47K	5%	1/8W	
R683	1-216-238-00	METAL GLAZE	47K	5%	1/8W	
R684	1-216-283-11	METAL GLAZE	3.6M	5%	1/8W	
R693	1-216-295-00	CONDUCTOR, CHIP		(2012)		

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

MD-69 **MP-43**

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S651	1-570-953-11	SWITCH, PUSH (1 KEY) (REC PRF)	

Ref. No.	Part No.	Description	Remark
*	A-6796-516-A	MP-43 BOARD, COMPLETE ********************** (Ref.No.6,000 series)	
	3-905-609-01	SCREW (TRANSISTOR)	
	4-812-134-00	RIVET (DIA. 3.5), NYLON	
		< CAPACITOR >	
C610	1-126-967-11	ELECT 47uF 20% 16V	
C612	1-107-597-11	CERAMIC 22PF 10% 500V	
C613	1-107-597-11	CERAMIC 22PF 10% 500V	
C620	1-162-286-31	CERAMIC 220PF 10% 50V	
C660	1-126-967-11	ELECT 47uF 20% 16V	
C662	1-107-597-11	CERAMIC 22PF 10% 500V	
C663	1-107-597-11	CERAMIC 22PF 10% 500V	
C670	1-162-286-31	CERAMIC 220PF 10% 50V	
C710	1-126-967-11	ELECT 47uF 20% 16V	
C712	1-107-597-11	CERAMIC 22PF 10% 500V	
C713	1-107-597-11	CERAMIC 22PF 10% 500V	
C720	1-162-286-31	CERAMIC 220PF 10% 50V	
C721	1-126-923-11	ELECT 220uF 20% 10V	
C722	1-126-965-11	ELECT 22uF 20% 50V	
C760	1-126-967-11	ELECT 47uF 20% 16V	
C762	1-107-597-11	CERAMIC 22PF 10% 500V	
C763	1-107-597-11	CERAMIC 22PF 10% 500V	
C770	1-162-286-31	CERAMIC 220PF 10% 50V	
C803	1-128-591-11	ELECT 6800uF 20% 56V	
C804	1-128-591-11	ELECT 6800uF 20% 56V	
⚠C805	1-130-781-00	FILM 0.22uF 10% 100V	
⚠C806	1-130-781-00	FILM 0.22uF 10% 100V	
C811	1-126-943-11	ELECT 2200uF 20% 25V	
C812	1-126-942-61	ELECT 1000uF 20% 25V	
⚠C813	1-102-074-00	CERAMIC 0.001uF 10% 50V	
⚠C814	1-102-074-00	CERAMIC 0.001uF 10% 50V	
C815	1-126-967-11	ELECT 47uF 20% 50V	
C816	1-126-967-11	ELECT 47uF 20% 50V	
		< CONNECTOR >	
CN602	1-764-817-11	CONNECTOR, BOARD TO BOARD 8P	
CN702	1-764-817-11	CONNECTOR, BOARD TO BOARD 8P	
CN703	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P	
CN704	1-506-468-11	PIN, CONNECTOR 3P	
CN705	1-506-468-11	PIN, CONNECTOR 3P	
CN801	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P	
CN802	1-506-475-11	PIN, CONNECTOR 10P	
		< DIODE >	
D711	8-719-987-63	DIODE 1N4148M	
D721	8-719-815-85	DIODE 1S1585	
D722	8-719-815-85	DIODE 1S1585	
D723	8-719-987-63	DIODE 1N4148M	
D724	8-719-987-63	DIODE 1N4148M	
D725	8-719-987-63	DIODE 1N4148M	
D726	8-719-987-63	DIODE 1N4148M	
⚠D802	8-719-302-38	DIODE RBV-602-01	
⚠D805	8-719-002-33	DIODE UZL-24L	
D818	8-719-987-63	DIODE 1N4148M	
⚠D820	8-719-510-53	DIODE D4SB60L	
		< EARTH TERMINAL >	
* EP801	1-537-738-21	TERMINAL, EARTH	
		< TRANSISTOR >	
Q601	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q602	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q603	8-729-020-52	TRANSISTOR 2SD2439-OPY	
Q604	8-729-020-48	TRANSISTOR 2SB1588-OPY	
Q610	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q620	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q651	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q652	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q653	8-729-020-52	TRANSISTOR 2SD2439-OPY	
Q654	8-729-020-48	TRANSISTOR 2SB1588-OPY	
Q670	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q702	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q703	8-729-020-52	TRANSISTOR 2SD2439-OPY	
Q704	8-729-020-48	TRANSISTOR 2SB1588-OPY	
Q710	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q711	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q720	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q721	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
Q722	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA	
Q723	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q751	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q752	8-729-141-30	TRANSISTOR 2SC3623A-LK	
Q753	8-729-020-52	TRANSISTOR 2SD2439-OPY	
Q754	8-729-020-48	TRANSISTOR 2SB1588-OPY	
Q770	8-729-140-82	TRANSISTOR 2SA988-PAFAEA	
⚠Q803	8-729-030-18	TRANSISTOR 2SD2525	
Q809	8-729-119-78	TRANSISTOR 2SC2785-HFE	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

< RESISTOR >

Ref. No.	Part No.	Description				Remark
R610	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R611	1-249-437-11	CARBON	47K	5%	1/4W	
R613	1-249-414-11	CARBON	560	5%	1/4W	F
⚠R614	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R615	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R616	1-233-352-21	ENCAPSULATED COMPONENT	0.22X2			
R620	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R621	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R623	1-249-437-11	CARBON	47K	5%	1/4W	
R631	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R632	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R660	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R661	1-249-437-11	CARBON	47K	5%	1/4W	
R663	1-249-414-11	CARBON	560	5%	1/4W	F
⚠R664	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R665	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R666	1-233-352-21	ENCAPSULATED COMPONENT	0.22X2			
R670	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R671	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R673	1-249-437-11	CARBON	47K	5%	1/4W	
R710	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R711	1-249-437-11	CARBON	47K	5%	1/4W	
R713	1-249-414-11	CARBON	560	5%	1/4W	F
⚠R714	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R715	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R716	1-233-352-21	ENCAPSULATED COMPONENT	0.22X2			
R720	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R721	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R723	1-249-437-11	CARBON	47K	5%	1/4W	
R724	1-249-429-11	CARBON	10K	5%	1/4W	
R725	1-249-429-11	CARBON	10K	5%	1/4W	
R726	1-249-417-11	CARBON	1K	5%	1/4W	F
R727	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R731	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R732	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R733	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R734	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R740	1-260-100-11	CARBON	1.2K	5%	1/2W	
R741	1-260-100-11	CARBON	1.2K	5%	1/2W	
R760	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R761	1-249-437-11	CARBON	47K	5%	1/4W	
R763	1-249-414-11	CARBON	560	5%	1/4W	F
⚠R764	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R765	1-249-405-11	CARBON	100	5%	1/4W	F
⚠R766	1-233-352-21	ENCAPSULATED COMPONENT	0.22X2			
R770	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R771	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R773	1-249-437-11	CARBON	47K	5%	1/4W	
R790	1-260-100-11	CARBON	1.2K	5%	1/2W	
R791	1-260-100-11	CARBON	1.2K	5%	1/2W	
⚠R806	1-249-389-11	CARBON	4.7	5%	1/4W	F
R807	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R823	1-249-437-11	CARBON	47K	5%	1/4W	
R824	1-249-425-11	CARBON	4.7K	5%	1/4W	F

< RELAY >

Ref. No.	Part No.	Description
RY702	1-515-793-11	RELAY
RY801	1-755-026-11	RELAY

* 1-663-363-11 MP-44 BOARD

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(Ref.No.6,000 series)

< CAPACITOR >

Ref. No.	Part No.	Description			
C601	1-126-963-11	ELECT	4.7uF	20%	50V
C602	1-162-282-31	CERAMIC	100PF	10%	50V
C603	1-126-933-11	ELECT	100uF	20%	10V
C605	1-102-233-00	CERAMIC	33PF	10%	500V
C651	1-126-963-11	ELECT	4.7uF	20%	50V
C652	1-162-282-31	CERAMIC	100PF	10%	50V
C653	1-126-933-11	ELECT	100uF	20%	10V
C655	1-102-233-00	CERAMIC	33PF	10%	500V
C701	1-126-963-11	ELECT	4.7uF	20%	50V
C702	1-162-282-31	CERAMIC	100PF	10%	50V
C703	1-126-933-11	ELECT	100uF	20%	10V
C705	1-102-233-00	CERAMIC	33PF	10%	500V
C706	1-164-159-11	CERAMIC	0.1uF		50V
C740	1-128-563-11	ELECT	100uF	20%	100V
C741	1-128-563-11	ELECT	100uF	20%	100V
C742	1-126-923-11	ELECT	220uF	20%	10V
C751	1-126-963-11	ELECT	4.7uF	20%	50V
C752	1-162-282-31	CERAMIC	100PF	10%	50V
C753	1-126-933-11	ELECT	100uF	20%	10V
C755	1-102-233-00	CERAMIC	33PF	10%	500V

< CONNECTOR >

Ref. No.	Part No.	Description
CN304	1-506-473-11	PIN, CONNECTOR 8P
CN601	1-764-810-11	CONNECTOR, BOARD TO BOARD 8P
CN701	1-764-810-11	CONNECTOR, BOARD TO BOARD 8P

< IC >

Ref. No.	Part No.	Description
IC701	8-759-326-52	IC uPC2581V
IC702	8-759-326-52	IC uPC2581V

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark	
		< TRANSISTOR >				
Q740	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA				
Q741	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA				
		< RESISTOR >				
R601	1-249-417-11	CARBON	1K	5%	1/4W	F
R602	1-249-439-11	CARBON	68K	5%	1/4W	
R603	1-249-414-11	CARBON	560	5%	1/4W	F
R604	1-249-439-11	CARBON	68K	5%	1/4W	
R651	1-249-417-11	CARBON	1K	5%	1/4W	F
R652	1-249-439-11	CARBON	68K	5%	1/4W	
R653	1-249-414-11	CARBON	560	5%	1/4W	F
R654	1-249-439-11	CARBON	68K	5%	1/4W	
R701	1-249-417-11	CARBON	1K	5%	1/4W	F
R702	1-249-439-11	CARBON	68K	5%	1/4W	
R703	1-249-414-11	CARBON	560	5%	1/4W	F
R704	1-249-439-11	CARBON	68K	5%	1/4W	
⚠R740	1-212-857-00	FUSIBLE	10	5%	1/4W	F
⚠R741	1-212-857-00	FUSIBLE	10	5%	1/4W	F
R742	1-249-417-11	CARBON	1K	5%	1/4W	F
R743	1-249-417-11	CARBON	1K	5%	1/4W	F
R744	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R745	1-249-435-11	CARBON	33K	5%	1/4W	
R751	1-249-417-11	CARBON	1K	5%	1/4W	F
R752	1-249-439-11	CARBON	68K	5%	1/4W	
R753	1-249-414-11	CARBON	560	5%	1/4W	F
R754	1-249-439-11	CARBON	68K	5%	1/4W	

Ref. No.	Part No.	Description			Remark
*	A-6794-265-A	PS-379 BOARD, COMPLETE ********************** (Ref.No.8,000 series)			
*	3-951-893-01	HEAT SINK			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2			
		< CAPACITOR >			
C221	1-126-935-11	ELECT	470uF	20%	16V
C222	1-126-926-11	ELECT	1000uF	20%	10V
C225	1-128-551-11	ELECT	22uF	20%	25V
C231	1-128-499-11	ELECT	220uF	20%	16V
C232	1-124-248-00	ELECT	22uF	20%	35V
C233	1-126-934-11	ELECT	220uF	20%	16V
C241	1-126-967-11	ELECT	47uF	20%	16V
C242	1-126-933-11	ELECT	100uF	20%	16V
C261	1-126-967-11	ELECT	47uF	20%	10V
C262	1-126-924-11	ELECT	330uF	20%	10V
C271	1-126-924-11	ELECT	330uF	20%	10V
C281	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C282	1-126-967-11	ELECT	47uF	20%	16V
C283	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C284	1-126-967-11	ELECT	47uF	20%	50V
C285	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C286	1-126-967-11	ELECT	47uF	20%	50V
C287	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C288	1-126-967-11	ELECT	47uF	20%	50V
C289	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C290	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C291	1-126-947-11	ELECT	47uF	20%	35V
		< CONNECTOR >			
* CN201	1-564-321-21	PIN, CONNECTOR 2P			
CN202	1-506-480-11	PIN, CONNECTOR 15P			
CN203	1-568-788-21	PIN, CONNECTOR 11P			
CN204	1-506-482-11	PIN, CONNECTOR 3P			
		< COMPOSITION CIRCUIT BLOCK >			
⚠CP201	1-468-042-11	POWER BLOCK			
⚠CP202	1-473-301-11	CONVERTER UNIT, DC/DC			
		< DIODE >			
⚠D231	8-719-200-82	DIODE 11ES2			
D261	8-719-911-19	DIODE 1SS119-25			
⚠D262	8-719-921-44	DIODE MTZJ-5.1C			
		< EARTH TERMINAL >			
* EP201	1-537-738-21	TERMINAL, EARTH			
		< IC >			
⚠IC241	8-759-189-48	IC PQ12RE11			
		< COIL >			
⚠L221	1-403-588-11	COIL, CHOKE 22uH			
⚠L222	1-403-588-11	COIL, CHOKE 22uH			
L281	1-408-970-21	INDUCTOR 10uH			
L282	1-414-142-11	INDUCTOR 1uH			
L283	1-414-142-11	INDUCTOR 1uH			
		< IC LINK >			
⚠PS221	1-532-637-00	LINK, IC 1.0A (ICP-N25)			
⚠PS222	1-532-637-00	LINK, IC 1.0A (ICP-N25)			
⚠PS223	1-532-637-00	LINK, IC 1.0A (ICP-N25)			
⚠PS281	1-532-679-00	LINK, IC 0.6A (ICN-N15)			
		< TRANSISTOR >			
⚠Q231	8-729-140-93	TRANSISTOR 2SB733-34			
Q232	8-729-900-53	TRANSISTOR DTC114EK			
⚠Q261	8-729-140-98	TRANSISTOR 2SD773-34			

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark	
⚠Q281	8-729-140-93	TRANSISTOR 2SB733-34				
Q282	8-729-900-53	TRANSISTOR DTC114EK				
Q291	8-729-010-25	TRANSISTOR MSD601-RT1				
		< RESISTOR >				
R225	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R231	1-249-417-11	CARBON	1K	5%	1/4W	F
⚠R232	1-216-430-11	METAL OXIDE	390	5%	1W	F
R233	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R241	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R261	1-249-412-11	CARBON	390	5%	1/4W	F
⚠R283	1-216-480-11	METAL OXIDE	820	5%	3W	F
⚠R284	1-216-480-11	METAL OXIDE	820	5%	3W	F
R285	1-249-429-11	CARBON	10K	5%	1/4W	
R291	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R292	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
*	1-663-347-11	RF-43 BOARD				
		************				
			(Ref.No.7,000 series)			
		< CAPACITOR >				
C761	1-126-933-11	ELECT	100uF	20%	10V	
C762	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C763	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C764	1-126-160-11	ELECT	1uF	20%	50V	
		< CONNECTOR >				
CN761	1-506-468-11	PIN, CONNECTOR 3P				
CN762	1-573-130-21	PIN, CONNECTOR 7P				
		< DIODE >				
D761	8-719-911-19	DIODE 1SS119-25				
D762	8-719-109-85	DIODE RD5.1ES-B2				
		< EARTH TERMINAL >				
* EP701	1-537-738-21	TERMINAL, EARTH				
		< COIL >				
L761	1-410-501-11	INDUCTOR 2.2uH				
L762	1-410-501-11	INDUCTOR 2.2uH				
		< TRANSISTOR >				
Q761	8-729-106-68	TRANSISTOR 2SD1615A-GP				
Q762	8-729-901-01	TRANSISTOR DTC144EK				
Q763	8-729-216-22	TRANSISTOR 2SA1162-G				

Ref. No.	Part No.	Description			Remark	
		< RESISTOR >				
R761	1-249-417-11	CARBON	1K	5%	1/4W	F
R762	1-216-049-11	METAL GLAZE	1K	5%	1/10W	
R763	1-216-230-00	METAL GLAZE	22K	5%	1/8W	
R764	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R765	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R766	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R767	1-216-049-11	METAL GLAZE	1K	5%	1/10W	
		< RF MODULATOR >				
⚠RF761	1-467-958-21	MODULATOR, RF (RFU-2100) (AERIAL)				
		< SWITCH >				
S761	1-571-588-11	SWITCH, SLIDE (RF MODULATOR)				
*	1-663-366-11	RG-40 BOARD				
		************				
			(Ref.No.5,000 series)			
		< CAPACITOR >				
C807	1-126-964-11	ELECT	10uF	20%	50V	
C808	1-126-964-11	ELECT	10uF	20%	50V	
C809	1-124-903-11	ELECT	1uF	20%	50V	
C810	1-124-903-11	ELECT	1uF	20%	50V	
C811	1-162-294-31	CERAMIC	0.001uF	10%	50V	
		< CONNECTOR >				
CN805	1-506-473-11	PIN, CONNECTOR 8P				
		< IC >				
⚠IC801	8-759-604-39	IC M5F78M12L				
⚠IC802	8-759-604-45	IC M5F79M12L				
		< TRANSISTOR >				
⚠Q804	8-729-209-15	TRANSISTOR 2SD2012				
*	A-6796-515-A	RP-213 BOARD, COMPLETE (UX,VC,NP)				
*	A-6796-520-A	RP-213 BOARD, COMPLETE (B)				
		**********************				
			(Ref.No.1,000 series)			
		< CAPACITOR >				
C501	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C502	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C503	1-163-033-00	CERAMIC CHIP	0.022uF		50V	
C504	1-163-033-00	CERAMIC CHIP	0.022uF		50V	
C505	1-163-031-11	CERAMIC CHIP	0.01uF		50V	

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Replace only with part number specified.

RP-213

Ref. No.	Part No.	Description			Remark
C506	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C507	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C508	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C509	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C510	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C511	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C512	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C513	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C514	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C515	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C516	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C517	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C518	1-124-584-00	ELECT	100uF	20%	10V
C519	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C520	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C521	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C522	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C523	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C524	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C525	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C526	1-124-584-00	ELECT	100uF	20%	10V
C527	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C528	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C529	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C530	1-163-129-00	CERAMIC CHIP	330PF	5%	50V (B)
C531	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C532	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C760	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C761	1-124-584-00	ELECT	100uF	20%	10V
C762	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C763	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C764	1-124-257-00	ELECT	2.2uF	20%	50V
C765	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C767	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C768	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C769	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C770	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C773	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C774	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C775	1-126-160-11	ELECT	1uF	20%	50V
C776	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C902	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C903	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C906	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C907	1-126-967-11	ELECT	47uF	20%	16V
C908	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C909	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remark
C910	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C911	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C913	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C914	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C941	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C943	1-126-967-11	ELECT	47uF	20%	16V
C946	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C947	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C948	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C949	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C950	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C951	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C952	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C953	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C961	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C962	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C971	1-126-967-11	ELECT	47uF	20%	16V
C972	1-163-038-00	CERAMIC CHIP	0.1uF		25V

< CONNECTOR >

Ref. No.	Part No.	Description
CN501	1-766-986-11	CONNECTOR, FFC/FPC 13P
* CN502	1-564-029-00	PIN, CONNECTOR 4P
CN503	1-766-720-11	CONNECTOR, BOARD TO BOARD 17P
CN601	1-770-524-41	CONNECTOR, FFC/FPC 17P
CN602	1-770-514-41	CONNECTOR, FFC/FPC 5P
CN603	1-573-834-11	CONNECTOR, BOARD TO BOARD 20P
CN701	1-766-724-11	CONNECTOR, BOARD TO BOARD 7P

< DIODE >

Ref. No.	Part No.	Description
D901	8-719-800-76	DIODE 1SS226

< IC >

Ref. No.	Part No.	Description
IC501	8-759-352-17	IC HA118195NT
IC760	8-759-055-49	IC AN3327K
IC941	8-759-352-18	IC M52374SP
IC971	8-759-097-80	IC HD49783FP

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remark
JR502	1-216-295-91	CONDUCTOR, CHIP	(2012)
JR503	1-216-295-91	CONDUCTOR, CHIP	(2012)
JR504	1-216-295-91	CONDUCTOR, CHIP	(2012)
JR505	1-216-295-91	CONDUCTOR, CHIP	(2012)
JR506	1-216-296-91	CONDUCTOR, CHIP	(3216)
JR507	1-216-295-91	CONDUCTOR, CHIP	(2012)
JR508	1-216-295-91	CONDUCTOR, CHIP	(2012)
JR509	1-216-295-91	CONDUCTOR, CHIP	(2012)

Ref. No.	Part No.	Description			Remark
		< COIL >			
L501	1-414-189-31	INDUCTOR 100uH			
L502	1-414-189-31	INDUCTOR 100uH			
L503	1-410-525-11	INDUCTOR 220uH			
L504	1-410-519-11	INDUCTOR 68uH (B)			
L760	1-414-189-31	INDUCTOR 100uH			
L901	1-414-189-31	INDUCTOR 100uH			
L903	1-410-508-11	INDUCTOR 8.2uH			
L905	1-408-096-00	INDUCTOR 470uH			
L941	1-414-189-31	INDUCTOR 100uH			
L944	1-410-518-21	INDUCTOR 56uH			
L971	1-414-189-31	INDUCTOR 100uH			
		< TRANSISTOR >			
Q501	8-729-271-21	TRANSISTOR 2SC2712-YG			
Q502	8-729-216-21	TRANSISTOR 2SA1162-Y			
Q503	8-729-027-59	TRANSISTOR DTC144EKA-T146 (B)			
Q901	8-729-271-21	TRANSISTOR 2SC2712-YG			
Q904	8-729-216-21	TRANSISTOR 2SA1162-Y			
Q905	8-729-271-21	TRANSISTOR 2SC2712-YG			
Q942	8-729-271-21	TRANSISTOR 2SC2712-YG			
Q961	8-729-271-21	TRANSISTOR 2SC2712-YG			
		< RESISTOR >			
R501	1-216-035-00	METAL CHIP	270	5%	1/10W
R502	1-216-035-00	METAL CHIP	270	5%	1/10W
R503	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R504	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R505	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R506	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R507	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R508	1-216-073-00	METAL CHIP	10K	5%	1/10W
R509	1-216-075-00	METAL CHIP	12K	5%	1/10W
R510	1-216-081-00	METAL CHIP	22K	5%	1/10W
R511	1-216-081-00	METAL CHIP	22K	5%	1/10W
R512	1-216-224-00	METAL GLAZE	12K	5%	1/8W
R513	1-216-081-00	METAL CHIP	22K	5%	1/10W
R514	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R515	1-216-081-00	METAL CHIP	22K	5%	1/10W
R516	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R517	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R518	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R519	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R520	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R762	1-216-035-00	METAL CHIP	270	5%	1/10W
R763	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R765	1-216-033-00	METAL CHIP	220	5%	1/10W
R766	1-249-418-11	CARBON	1.2K	5%	1/4W F

Ref. No.	Part No.	Description			Remark
R767	1-216-035-00	METAL CHIP	270	5%	1/10W
R768	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R771	1-216-079-00	METAL CHIP	18K	5%	1/10W
R776	1-216-073-00	METAL CHIP	10K	5%	1/10W
R901	1-216-045-00	METAL CHIP	680	5%	1/10W
R902	1-216-077-00	METAL CHIP	15K	5%	1/10W
R903	1-216-075-00	METAL CHIP	12K	5%	1/10W
R904	1-216-037-00	METAL CHIP	330	5%	1/10W
R905	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R906	1-216-033-00	METAL CHIP	220	5%	1/10W
R910	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R911	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R912	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R913	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R914	1-216-031-00	METAL CHIP	180	5%	1/10W
R916	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R917	1-216-029-00	METAL CHIP	150	5%	1/10W
R918	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R919	1-216-045-00	METAL CHIP	680	5%	1/10W
R920	1-216-075-00	METAL CHIP	12K	5%	1/10W
R921	1-216-077-00	METAL CHIP	15K	5%	1/10W
R932	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R942	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R943	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R946	1-216-075-00	METAL CHIP	12K	5%	1/10W
R947	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R952	1-216-081-00	METAL CHIP	22K	5%	1/10W
R961	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R962	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R963	1-216-085-00	METAL CHIP	33K	5%	1/10W
R964	1-216-081-00	METAL CHIP	22K	5%	1/10W
R965	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R971	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R972	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R973	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R974	1-216-077-00	METAL CHIP	15K	5%	1/10W
R975	1-249-424-11	CARBON	3.9K	5%	1/4W F
R976	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R977	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R978	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R979	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R980	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R981	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R982	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R983	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R984	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R985	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R986	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R987	1-216-077-00	METAL CHIP	15K	5%	1/10W

Ref. No.	Part No.	Description			Remark	
R988	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R989	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R990	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R991	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R992	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	

Ref. No.	Part No.	Description			Remark	
*	1-663-362-11	SP-37 BOARD ************				
			(Ref.No.6,000 series)			
		< CAPACITOR >				
C611	1-137-372-11	FILM	0.022uF	5%	50V	
C649	1-137-370-11	FILM	0.01uF	5%	50V	
C661	1-137-372-11	FILM	0.022uF	5%	50V	
C699	1-137-370-11	FILM	0.01uF	5%	50V	
C711	1-137-372-11	FILM	0.022uF	5%	50V	
C749	1-137-370-11	FILM	0.01uF	5%	50V	
C761	1-137-372-11	FILM	0.022uF	5%	50V	
C799	1-137-370-11	FILM	0.01uF	5%	50V	
		< CONNECTOR >				
CN706	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P				
CN707	1-506-468-11	PIN, CONNECTOR 3P				
		< DIODE >				
D610	8-719-987-63	DIODE 1N4148M				
D710	8-719-987-63	DIODE 1N4148M				
		< JACK >				
J701	1-774-785-11	JACK, PIN 1P (MIX OUT)				
		< COIL >				
⚠L601	1-420-872-00	COIL, AIR-CORE				
⚠L651	1-420-872-00	COIL, AIR-CORE				
⚠L701	1-420-872-00	COIL, AIR-CORE				
⚠L751	1-420-872-00	COIL, AIR-CORE				
		< RESISTOR >				
⚠R617	1-249-393-11	CARBON	10	5%	1/4W	F
R618	1-249-389-11	CARBON	4.7	5%	1/4W	F
R631	1-247-883-00	CARBON	150K	5%	1/4W	
⚠R649	1-249-394-11	CARBON	12	5%	1/4W	F
⚠R667	1-249-393-11	CARBON	10	5%	1/4W	F
R668	1-249-389-11	CARBON	4.7	5%	1/4W	F
⚠R699	1-249-393-11	CARBON	10	5%	1/4W	F
⚠R717	1-249-393-11	CARBON	10	5%	1/4W	F
R718	1-249-389-11	CARBON	4.7	5%	1/4W	F
R731	1-247-883-00	CARBON	150K	5%	1/4W	
R734	1-249-429-11	CARBON	10K	5%	1/4W	
⚠R749	1-249-393-11	CARBON	10	5%	1/4W	F
⚠R767	1-249-393-11	CARBON	10	5%	1/4W	F
R768	1-249-389-11	CARBON	4.7	5%	1/4W	F
R781	1-247-883-00	CARBON	150K	5%	1/4W	
⚠R799	1-249-393-11	CARBON	10	5%	1/4W	F
		< RELAY >				
RY601	1-515-920-11	RELAY (24V)				
RY701	1-515-920-11	RELAY (24V)				
		< TERMINAL >				
TM601	1-537-510-11	TERMINAL BOARD (SPEAKER) (6P) (SURROUND SPEAKER)				
TM701	1-537-240-11	TERMINAL BOARD (CHECKER PIN) (FRONT SPEAKER)				

Ref. No.	Part No.	Description			Remark
*	A-6794-270-A	SR-24 BOARD, COMPLETE **********************			
			(Ref.No.5,000 series)		
		< CAPACITOR >			
C302	1-126-934-11	ELECT	220uF	20%	16V
C303	1-130-489-00	MYLAR	0.033uF	5%	50V
C304	1-137-365-11	FILM	0.0015uF	5%	50V
C305	1-130-489-00	MYLAR	0.033uF	5%	50V
C306	1-124-903-11	ELECT	1uF	20%	50V
C307	1-126-964-11	ELECT	10uF	20%	50V
C308	1-126-964-11	ELECT	10uF	20%	50V
C309	1-162-291-31	CERAMIC	560PF	10%	50V
C310	1-126-962-11	ELECT	3.3uF	20%	50V
C311	1-124-925-11	ELECT	2.2uF	20%	100V
C312	1-126-934-11	ELECT	220uF	20%	16V
C313	1-126-934-11	ELECT	220uF	20%	16V
C314	1-136-165-00	FILM	0.1uF	5%	50V
C316	1-126-964-11	ELECT	10uF	20%	50V
C317	1-126-933-11	ELECT	100uF	20%	16V
C318	1-137-363-91	FILM	680PF	5%	50V
C322	1-126-962-11	ELECT	3.3uF	20%	50V
C323	1-136-173-00	FILM	0.47uF	5%	50V
C324	1-126-967-11	ELECT	47uF	20%	16V
C325	1-136-165-00	FILM	0.1uF	5%	50V
C326	1-136-165-00	FILM	0.1uF	5%	50V
C327	1-124-902-00	ELECT	0.47uF	20%	50V
C328	1-126-963-11	ELECT	4.7uF	20%	50V
C329	1-124-902-00	ELECT	0.47uF	20%	50V
C330	1-126-963-11	ELECT	4.7uF	20%	50V
C331	1-124-250-11	ELECT	0.15uF	20%	50V

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
C332	1-126-962-11	ELECT	3.3uF	20%	50V
C333	1-124-250-11	ELECT	0.15uF	20%	50V
C334	1-137-372-11	FILM	0.022uF	5%	50V
C335	1-136-161-00	FILM	0.047uF	5%	50V
C336	1-126-934-11	ELECT	220uF	20%	16V
C337	1-126-964-11	ELECT	10uF	20%	50V
C338	1-126-964-11	ELECT	10uF	20%	50V
C339	1-126-964-11	ELECT	10uF	20%	50V
C340	1-126-964-11	ELECT	10uF	20%	50V
C341	1-126-934-11	ELECT	220uF	20%	16V
C342	1-126-962-11	ELECT	3.3uF	20%	50V
C343	1-126-962-11	ELECT	3.3uF	20%	50V
C344	1-136-165-00	FILM	0.1uF	5%	50V
C345	1-136-165-00	FILM	0.1uF	5%	50V
C346	1-124-902-00	ELECT	0.47uF	20%	50V
C347	1-126-963-11	ELECT	4.7uF	20%	50V
C348	1-124-902-00	ELECT	0.47uF	20%	50V
C349	1-126-963-11	ELECT	4.7uF	20%	50V
C350	1-124-250-11	ELECT	0.15uF	20%	50V
C351	1-126-962-11	ELECT	3.3uF	20%	50V
C352	1-124-250-11	ELECT	0.15uF	20%	50V
C355	1-164-159-11	CERAMIC	0.1uF		50V
C356	1-164-159-11	CERAMIC	0.1uF		50V
C357	1-164-159-11	CERAMIC	0.1uF		50V
C359	1-126-963-11	ELECT	4.7uF	20%	50V
C360	1-126-963-11	ELECT	4.7uF	20%	50V
C363	1-164-159-11	CERAMIC	0.1uF		50V
C365	1-126-966-11	ELECT	33uF	20%	50V
C366	1-164-159-11	CERAMIC	0.1uF		50V
C370	1-124-902-00	ELECT	0.47uF	20%	50V
C371	1-162-209-31	CERAMIC	27PF	5%	50V
C381	1-164-159-11	CERAMIC	0.1uF		50V
C401	1-164-159-11	CERAMIC	0.1uF		50V
C402	1-126-963-11	ELECT	4.7uF	20%	50V
C403	1-126-964-11	ELECT	10uF	20%	50V
C404	1-136-171-00	FILM	0.33uF	5%	50V
C405	1-130-489-00	MYLAR	0.033uF	5%	50V
C406	1-126-963-11	ELECT	4.7uF	20%	50V
C407	1-162-209-31	CERAMIC	27PF	5%	50V
C408	1-126-967-11	ELECT	47uF	20%	16V
C409	1-164-159-11	CERAMIC	0.1uF		50V
C410	1-126-967-11	ELECT	47uF	20%	16V
C411	1-130-299-00	FILM	0.012uF	5%	50V
C412	1-136-163-00	FILM	0.068uF	5%	50V
C413	1-137-457-11	FILM	0.0027uF	5%	50V
C414	1-126-964-11	ELECT	10uF	20%	50V
C415	1-137-372-11	FILM	0.022uF	5%	50V
C416	1-126-963-11	ELECT	4.7uF	20%	50V
C432	1-162-290-31	CERAMIC	470PF	10%	50V

Ref. No.	Part No.	Description			Remark
C433	1-164-159-11	CERAMIC	0.1uF		50V
C434	1-162-286-31	CERAMIC	220PF	10%	50V
C435	1-162-286-31	CERAMIC	220PF	10%	50V
C454	1-136-171-00	FILM	0.33uF	5%	50V
C455	1-130-489-00	MYLAR	0.033uF	5%	50V
C456	1-126-963-11	ELECT	4.7uF	20%	50V
C457	1-162-209-31	CERAMIC	27PF	5%	50V
C458	1-126-967-11	ELECT	47uF	20%	16V
C459	1-164-159-11	CERAMIC	0.1uF		50V
C460	1-126-967-11	ELECT	47uF	20%	16V
C461	1-130-299-00	FILM	0.012uF	5%	50V
C462	1-136-163-00	FILM	0.068uF	5%	50V
C463	1-137-457-11	FILM	0.0027uF	5%	50V
C464	1-126-964-11	ELECT	10uF	20%	50V
C465	1-137-372-11	FILM	0.022uF	5%	50V
C820	1-126-967-11	ELECT	47uF	20%	16V
C821	1-126-967-11	ELECT	47uF	20%	16V
C822	1-126-967-11	ELECT	47uF	20%	16V
C823	1-126-967-11	ELECT	47uF	20%	16V
C824	1-126-967-11	ELECT	47uF	20%	16V
C825	1-126-967-11	ELECT	47uF	20%	16V

< CONNECTOR >

CN201	1-770-530-41	CONNECTOR, FFC/FPC 23P
CN202	1-770-519-41	CONNECTOR, FFC/FPC 11P
CN301	1-506-475-11	PIN, CONNECTOR 10P
CN403	1-506-482-11	PIN, CONNECTOR 3P
CN803	1-573-737-21	PIN, CONNECTOR 10P
CN804	1-573-735-11	PIN, CONNECTOR 8P
CN805	1-564-517-11	PLUG, CONNECTOR 2P

< DIODE >

D370	8-719-987-63	DIODE	1N4148M
D371	8-719-987-63	DIODE	1N4148M
D372	8-719-933-33	DIODE	HZS6A1L
D373	8-719-933-50	DIODE	HZS7C2L
D374	8-719-000-60	DIODE	UZL-6M2
D375	8-719-987-63	DIODE	1N4148M
D376	8-719-001-64	DIODE	UZL-12L2
D401	8-719-987-63	DIODE	1N4148M
D817	8-719-001-30	DIODE	UZL-9H3
D821	8-719-910-25	DIODE	HZ12B2L

< IC >

IC300	8-759-341-23	IC	LV1011
IC301	8-759-248-74	IC	LA2785
IC302	8-759-634-51	IC	M5218AP
IC303	8-759-634-51	IC	M5218AP
IC401	8-759-072-32	IC	TC9184P

Ref. No.	Part No.	Description			Remark	
IC402	8-759-634-51	IC M5218AP				
IC403	8-759-708-05	IC NJM78L05A				
		< COIL >				
L301	1-410-509-11	INDUCTOR 10uH				
L302	1-410-509-11	INDUCTOR 10uH				
		< TRANSISTOR >				
Q305	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q306	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q307	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q308	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q371	8-729-119-79	TRANSISTOR 2SC2785-FEK				
Q372	8-729-900-80	TRANSISTOR DTC114ES				
Q374	8-729-119-79	TRANSISTOR 2SC2785-FEK				
Q401	8-729-202-67	TRANSISTOR 2SK246-GR3				
Q402	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q403	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q451	8-729-202-67	TRANSISTOR 2SK246-GR3				
Q452	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q453	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q733	8-729-422-57	TRANSISTOR UN4111				
Q808	8-729-180-92	TRANSISTOR 2SD809-K				
Q821	8-729-180-92	TRANSISTOR 2SD809-K				
		< RESISTOR >				
R300	1-247-903-00	CARBON	1M	5%	1/4W	
R303	1-249-439-11	CARBON	68K	5%	1/4W	
R304	1-249-441-11	CARBON	100K	5%	1/4W	
R306	1-249-436-11	CARBON	39K	5%	1/4W	
R307	1-247-862-11	CARBON	20K	5%	1/4W	
R308	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R309	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R352	1-249-441-11	CARBON	100K	5%	1/4W	
R353	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R354	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R355	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R356	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R357	1-249-441-11	CARBON	100K	5%	1/4W	
R358	1-249-441-11	CARBON	100K	5%	1/4W	
R359	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R360	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R361	1-249-429-11	CARBON	10K	5%	1/4W	
R362	1-249-429-11	CARBON	10K	5%	1/4W	
R363	1-249-411-11	CARBON	330	5%	1/4W	
R372	1-247-895-00	CARBON	470K	5%	1/4W	
R373	1-249-429-11	CARBON	10K	5%	1/4W	
R374	1-247-895-00	CARBON	470K	5%	1/4W	

Ref. No.	Part No.	Description			Remark	
R375	1-249-417-11	CARBON	1K	5%	1/4W	F
R376	1-249-439-11	CARBON	68K	5%	1/4W	
⚠R377	1-249-421-11	CARBON	2.2K	5%	1/4W	F
⚠R378	1-249-385-11	CARBON	2.2	5%	1/6W	F
R380	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R381	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R382	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R401	1-247-903-00	CARBON	1M	5%	1/4W	
R402	1-249-436-11	CARBON	39K	5%	1/4W	
R403	1-249-441-11	CARBON	100K	5%	1/4W	
R404	1-249-441-11	CARBON	100K	5%	1/4W	
R405	1-247-843-11	CARBON	3.3K	5%	1/4W	
R406	1-247-883-00	CARBON	150K	5%	1/4W	
R407	1-249-412-11	CARBON	390	5%	1/4W	F
R408	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R409	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R410	1-249-440-11	CARBON	82K	5%	1/4W	
R411	1-247-895-00	CARBON	470K	5%	1/4W	
R412	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R413	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R414	1-247-897-11	CARBON	560K	5%	1/4W	
R415	1-249-436-11	CARBON	39K	5%	1/4W	
R416	1-249-434-11	CARBON	27K	5%	1/4W	
R417	1-249-426-11	CARBON	5.6K	5%	1/4W	
R418	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R419	1-249-417-11	CARBON	1K	5%	1/4W	F
R420	1-247-807-31	CARBON	100	5%	1/4W	
R421	1-249-417-11	CARBON	1K	5%	1/4W	F
R422	1-249-417-11	CARBON	1K	5%	1/4W	F
R423	1-249-441-11	CARBON	100K	5%	1/4W	
R426	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R427	1-249-441-11	CARBON	100K	5%	1/4W	
R428	1-249-417-11	CARBON	1K	5%	1/4W	F
R429	1-249-441-11	CARBON	100K	5%	1/4W	
R430	1-247-903-00	CARBON	1M	5%	1/4W	
R452	1-249-436-11	CARBON	39K	5%	1/4W	
R454	1-249-441-11	CARBON	100K	5%	1/4W	
R455	1-247-843-11	CARBON	3.3K	5%	1/4W	
R456	1-247-883-00	CARBON	150K	5%	1/4W	
R457	1-249-412-11	CARBON	390	5%	1/4W	F
R458	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R459	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R460	1-249-440-11	CARBON	82K	5%	1/4W	
R461	1-247-895-00	CARBON	470K	5%	1/4W	
R462	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R463	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R464	1-247-897-11	CARBON	560K	5%	1/4W	
R465	1-249-436-11	CARBON	39K	5%	1/4W	
R466	1-249-434-11	CARBON	27K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark	
R467	1-249-426-11	CARBON	5.6K	5%	1/4W	
R468	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R469	1-249-417-11	CARBON	1K	5%	1/4W	F
R470	1-247-807-31	CARBON	100	5%	1/4W	
R472	1-249-417-11	CARBON	1K	5%	1/4W	F
R476	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R477	1-249-441-11	CARBON	100K	5%	1/4W	
R478	1-249-417-11	CARBON	1K	5%	1/4W	F
R479	1-249-441-11	CARBON	100K	5%	1/4W	
R480	1-247-903-00	CARBON	1M	5%	1/4W	
R825	1-249-407-11	CARBON	150	5%	1/4W	F
R826	1-249-421-11	CARBON	2.2K	5%	1/4W	F
⚠R827	1-249-385-11	CARBON	2.2	5%	1/6W	F
		< VIBRATOR >				
X301	1-579-952-21	VIBRATOR, CERAMIC (8MHz)				
*	1-663-360-11	TI-45 BOARD ***********				
			(Ref.No.8,000 series)			
		< CONNECTOR >				
CN901	1-564-321-00	PIN, CONNECTOR 2P				
*	1-663-348-11	TK-39 BOARD (B) ***************				
			(Ref.No.2,000 series)			
*	3-957-421-11	HOLDER, SECAM IC				
		< CONNECTOR >				
CN251	1-573-827-11	CONNECTOR, BOARD TO BOARD 13P				
		< IC >				
IC251	1-809-959-12	IC TME656				
*	1-663-361-11	TO-12 BOARD ***********				
			(Ref.No.8,000 series)			
		< CONNECTOR >				
CN902	1-764-477-11	PIN, CONNECTOR (PC BOARD) 8P				
		< RESISTOR >				
⚠R901	1-249-377-11	CARBON	0.47	5%	1/4W	F
⚠R902	1-249-377-11	CARBON	0.47	5%	1/4W	F

Ref. No.	Part No.	Description			Remark
*	1-663-364-11	VR-61 BOARD ************			
			(Ref.No.5,000 series)		
		< CAPACITOR >			
C430	1-124-903-11	ELECT	1uF	20%	50V
C431	1-124-903-11	ELECT	1uF	20%	50V
C432	1-164-159-11	CERAMIC	0.1uF		50V
C433	1-126-964-11	ELECT	10uF	20%	50V
		< CONNECTOR >			
CN312	1-506-475-11	PIN, CONNECTOR 10P			
CN313	1-506-473-11	PIN, CONNECTOR 8P			
CN401	1-506-469-11	PIN, CONNECTOR 4P			
CN402	1-506-468-11	PIN, CONNECTOR 3P			
CN708	1-506-468-11	PIN, CONNECTOR 3P			
CN709	1-506-468-11	PIN, CONNECTOR 3P			
		< DIODE >			
D431	8-719-933-36	DIODE HZS6B1L			
		< IC >			
IC404	8-759-822-09	IC LB1641			
		< RESISTOR >			
R401	1-247-885-00	CARBON	180K	5%	1/4W
R402	1-247-885-00	CARBON	180K	5%	1/4W
R403	1-247-885-00	CARBON	180K	5%	1/4W
R404	1-247-885-00	CARBON	180K	5%	1/4W
		< VARIABLE RESISTOR >			
RV404	1-241-816-11	RES, VAR, CARBON 100KX4 (MASTERVOLUME)			

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
14	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
68	1-777-620-11	CABLE, FLAT (FuF-16) 19P	
71	1-777-619-11	CABLE, FLAT (FSF-11) 23P	
105	1-777-618-11	CABLE, FLAT (FSI-1) 11P	
106	1-777-616-11	CABLE, FLAT (FRI-3) 5P	
112	1-777-615-11	CABLE, FLAT (FRI-2) 17P	
114	1-777-617-11	CABLE, FLAT (FII-1) 21P	
⚠119	1-769-744-11	CORD, POWER (VC,B,NP)	
⚠120	1-526-794-11	OUTLET, AC (VC,B,NP)	
⚠122	1-696-570-21	CORD, POWER (UX)	
211	1-506-485-11	PIN, CONNECTOR 6P	
268	8-848-625-02	DRUM ASSY, UPPER (DZR-68-R)	
269	8-848-666-11	DRUM ASSY, LOWER (DZL-51B/J-RP)	
323	1-766-723-11	CONNECTOR, BOARD TO BOARD 3P	
⚠F101	1-532-203-00	FUSE (2A/250V)	
⚠F102	1-532-259-00	FUSE (1.6A/250V)	
⚠F103	1-532-286-00	FUSE (2.5A/250V) (VC,B,NP)	
FE901	1-500-144-11	HEAD, FE	
M902	1-698-409-14	MOTOR, DC (CAPSTAN)	
M903	X-3943-883-1	MOTOR ASSY, CAM	
M904	1-698-380-11	MOTOR, FAN (DC)	
S901	1-762-076-11	SWITCH, ROTARY (ENCODER)	
S902	1-762-844-11	SWITCH, ROTARY	
⚠T901	1-429-524-21	TRANSFORMER, POWER	

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-696-593-11	CORD, CONNECTION (PAL) (COAXIAL CABLE WITH F-TYPE)	
	3-694-922-01	SHEET, PROTECTION	
	3-858-238-21	MANUAL, INSTRUCTION (ENGLISH) (UX)	
	3-858-628-11	MANUAL, INSTRUCTION (ENGLISH) (VC,B,NP)	
	3-858-628-21	MANUAL, INSTRUCTION (GERMAN) (VC,NP)	
	3-858-628-31	MANUAL, INSTRUCTION (DANISH) (VC,NP)	
	3-858-628-41	MANUAL, INSTRUCTION (ITALIAN) (VC)	
	3-858-628-51	MANUAL, INSTRUCTION (SPANISH) (NP)	
	3-858-628-61	MANUAL, INSTRUCTION (PORTUGUESE) (NP)	
	3-858-628-71	MANUAL, INSTRUCTION (SWEDISH) (NP)	
	3-858-628-81	MANUAL, INSTRUCTION (DANISH) (NP)	
	3-858-628-91	MANUAL, INSTRUCTION (FINNISH) (NP)	
*	3-973-361-01	INDIVIDUAL CARTON (VC,NP)	
*	3-973-361-11	INDIVIDUAL CARTON (UX)	
*	3-973-361-21	INDIVIDUAL CARTON (B)	
*	3-973-362-01	CUSHION	

****
HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#2	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#3	7-628-254-15	SCREW +PS 2.6X6	
#4	7-682-645-01	SCREW +PS 3X4	
#5	7-624-106-04	STOP RING 3.0, TYPE -E	
#6	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3	
#7	7-682-547-04	SCREW +P 3X6	
#8	7-685-881-01	SCREW +BVTT 4X8 (S)	
#9	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

SECTION 7
INTERFACE AND IC PIN FUNCTION

7-1. SYSTEM CONTROL – VIDEO BLOCK INTERFACE (MA-283 BOARD IC201)

Signal	Pin No.	I/O	STOP FF/ REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC • PAUSE
$\overline{\text{VPB}}$	IC201 (98)	O	H	H	H	L	L	L	L	L	L	H	H
RF SWP (SW25)	IC201 ①	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
QVD	IC201 ②	O	L	L	L	*2	*3	*3	*3	*3	*3	L	L
NA $\overline{\text{SP}}$	IC201 (94)	O	*4	*4	*4	*5	*5	*5	*5	*5	*5	*4	*4
$\overline{\text{SP}}$/EP/LP	IC201 ⑫	O	*8	*8	*8	*5	*5	*5	*5	*5	*5	*8	*8
V SYNC	IC201 (66)	I	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
REC CTL	IC201 ⑦	O	L	L	L	L	L	L	L	L	L	H	L
BLUE BACK ON	IC201 ㉑	O	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
JOG	IC201 (97)	O	L	L	L	L	H	H	L	L	L	L	L
ORC SETTEI	IC201 (91)	O	L	L	L	L	L	L	L	L	L	*9	*9
$\overline{\text{NTSC}}$	IC201 ⑤	O	L	L	L	L	L	L	L	L	L	L	L

*1. Synchronized with drum rotation. 25 Hz 50% duty pulse.
*2. Normally "L". "H" when CTL signal is not generated.
*3. V period "H" pulse.
*4. Selected by REC mode. SP mode: "L"
*5. Selected by tape recording mode.
*6. Composite Sync signal (positive).
*7. "H" when menu screen or blue back screen.
*8. Selected by REC mode: "H" LP mode.
*9. "H" during APC measurement.

Signal \ Mode	SP	LP	EP
$\overline{\text{SP}}$ (93)	L	H	H
$\overline{\text{SP}}$/EP/LP ⑫	L	L	H

7-2. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE (MA-283 BOARD IC201)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	CUE	x 2	REVIEW	REC	REC • PAUSE	PB INDEX WRT/ERS
REC CTL	IC201 ⑦	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	
$\overline{\text{CAP STOP}}$	IC201 ㉟	O (O.D)	L	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	L	*3	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	
STEP PLS	IC201 (99)	O	L	L	L	L	L	L	L	*2	L	L	L	L	L	
CTL REC	IC201 (75)	O	L	L	L	L	L	L	L	L	L	L	L	H	L	H
CTL INDEX	IC201 (79)	O	L	L	L	L	L	L	L	L	L	L	L	L	L	H
$\overline{\text{PB CTL}}$	IC201 (67)	I	H	*6	*6			*1	H/L	*2	*6	*6	*6	*1	H	
DRM PG	IC201 (68)	I	*4	*1	*1	*5	*5	*1	*1	*1	*1	*1	*1	*1	*1	
DRM FG	IC201 (69)	I	*4	*7	*7	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7	
CAP FG	IC201 (70)	I	H/L	*6	*6	*5	*5	*6	H/L	*2	*6	*6	*6	*6	H/L	
CAP DA	IC201 (73)	O	*8	*8	*8	*8	*8	*9	*8	*8	*9	*9	*9	*9	*8	
DRM DA	IC201 (74)	O	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	*10	
CTL STEP	IC201 (76)	O	L	L	L	L	L	L	L	*11	L	L	L	L	L	

*1. 25 Hz pulse.
*2. Pulse at tape running.
*3. Reverse logic pulse of STEP PLS.
*4. "L" when drum rotation stop.
*5. Unstable period pulse.
*6. Pulse of period in proportion to tape speed.
*7. 300 Hz pulse.
*8. Approx. 2 msec period "H" or "L" pulse.
*9. Approx. 1.5 msec period "H" or "L" pulse.
*10. Approx. 3 msec period "H" or "L" pulse.
*11. "H" when FWD direction STEP drive.

7-3. SYSTEM CONTROL – MECHANISM INTERFACE (MA-283 BOARD IC201)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREAD-ING	TAPE UNTHREAD-ING	STOP	FF	REW	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	PB • PAUSE
CAM LOAD	IC201 ⑬	O	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L	L
CAM UNLOAD	IC201 ⑭	O	L	L	H	L	H	L	L	L	L	L	L	L	L	L	L	L
CAM 12V	IC201 ㉛	O		H	L	H	L											
MODE1	IC201 ㉚	I	H	L	L	*1	*1	H	H	H	H	H	H	H	H	L	H	H
MODE2	IC201 ㉙	I	L	L	L	*1	*1	L	L	L	H	H	H	H	H	H	H	H
MODE3	IC201 ㉘	I	L	L	L	*1	*1	H	H	H	L	H	H	L	L	H	L	H
MODE4	IC201 ㉗	I	L	H	H	*1	*1	H	L	L	L	L	L	L	L	L	L	L
C IN (REC PRF)	IC201 ⑮	I	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
TREEL FG	IC201 (64)	I	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
SREEL FG	IC201 (63)	I	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
T/E LED	IC201 ㉜	O (O.D)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP TRQ1	IC201 ㉞	O (O.D)											*1					
CAP TRQ2	IC201 ㉝	O (O.D)										L	*1					L
CAP TRQ3	IC201 ⑧	O (O.D)							H	H			*1		H	H		
$\overline{\text{CAP STOP}}$	IC201 ㉟	O (O.D)	L	L	L	H	H	L	H	H	H	L	*5	H	H	H	H	L
CAP RVS	IC201 (72)	O	H			L	H	H/L	L	H	L	L	L/*5	L	L	H	L	L
CAP DA	IC201 (73)	O																
T SENS	IC201 (61)	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	IC201 (62)	I	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. Uncertainty.
*2. "L" when erasing protection tab is bent, "H" when not bent.
*3. Pause of period in proportion to reel rotating speed.
*4. Approx. 2 msec period "H" pulse.
*5. Pulse at tape running.
*6. "L" when tape running and CAP RVS is "H".
*7. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.

7-4. SYSTEM CONTROL – SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA-283 BOARD IC201)

Signal	Pin No.	I/O	I/O level
ASURA RESET	IC201 ㊵	I	Normally "H", "L" when service interruption is detected or restored.
ASURA CS	IC201 ㊹	I	Chip select signal from timer microprocessor. V period "L" pulse.
S IN 0	IC201 ㊺	I	Serial communication data from timer microprocessor. V period "L" pulse.
S OUT 0	IC201 ㊻	O	Serial communication data to timer microprocessor. V period "L" pulse.
SCLK	IC201 ㊼	I	Serial communication clock with timer microprocessor. V period "L" pulse.

7-5. SYSTEM CONTROL – Hi-Fi AUDIO BLOCK INTERFACE (MA-283 BOARD IC201)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UNLOADING	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC • PAUSE
AF ENV	IC201 (59)	I	AF RF envelope signal input terminal for automatic tracking.										
A MUTE	IC201 (92)	O (O.D)	L	L	L	*1	H	H	H	H	H	L	L
NAREC P	IC201 ⑪	O	L	L	L	L	L	L	L	L	L	H	L
AF REC P	IC201 ④	O	L	L	L	L	L	L	L	L	L	H	L
AF SWP	IC201 (100)	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
FULL ERS	IC201 ㊱	O (O.D)	H	H	H	H	H	H	H	H	H	L	H

*1. 25 Hz 50% duty pulse approx. 5 msec delayed from RF SWP.

7-6. SYSTEM CONTROL – NORMAL AUDIO BLOCK INTERFACE (MA-283 BOARD IC201)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UNLOADING	PB	PB • PAUSE	SLOW	x 2	CUE	REVIEW	REC	REC • PAUSE
NAPB	IC201 (95)	O	L	L	L	H	H	H	H	H	H	L	L
A MUTE	IC201 (92)	O (O.D)	L	L	L	*1	H	H	H	H	H	L	L
NA SP	IC201 (94)	O	*2	*2	*2	*3	*3	*3	*3	*3	*2	*2	*2
NAREC P	IC201 ⑪	O	L	L	L	L	L	L	L	L	L	H	L
FULL ERS	IC201 ㊱	O (O.D)	H	H	H	H	H	H	H	H	H	L	H

*1. 25 Hz 50% duty pulse approx. 5 msec delayed from RF SWP.
*2. Selected by REC mode selector. SP mode: "L".
*3. Selected by tape recording mode. SP mode: "L".

7-7. SYSTEM CONTROL – INPUT SELECTION BLOCK INTERFACE (MA-283 BOARD IC201)

Signal	Pin No.	I/O	I/O level		
			TUNER	LINE 1	LINE 2
LINE1	IC201 (83)	O	L	H	L
LINE2	IC201 (82)	O	L	L	H

7-8. SERVO/SYSTEM CONTROL MICROPROCESSOR PORT FUNCTION DESCRIPTION (MA-283 BOARD IC201 CXP87248A-019Q)

Pin No.	Pin Name	I/O	Function
1	RF SWP	O	RF switching pulse output.
2	QVD	O	Quasi VD pulse output.
3	QHD ENBL	O	Quasi HD voltage level control.
4	AF REC P	O	"H" output when hi-fi audio REC.
5	NTSC	O	"H" when PAL mode, "L" when NTSC mode.
6	FE ON	O	Flying erase ON/OFF.
7	REC CTL	O	REC CTL signal output.
8	CAP TRQ3	O	Capstan current control.
9	APC2	I	APC control input terminal 2.
10	APC1	I	APC control input terminal 1.
11	NAREC P	I/O	Normal audio recording mode, H: recording mode.
12	SP/EP/LP	O	"L" when SP mode, "H" when EP/LP mode.
13	CAM LOAD	I	Loading motor rotating direction control.
14	CAM UNLOAD	I	Loading motor rotating direction control.
15	CIN (REC PRF)	I	Erasing protection bab, cassette IN detection input.
16	RENTAL	I/O	YNR control.
17	NC	O	Not used.
18	NC	–	Not used.
19	3.58NTSC	I	Tuner audio selection signal. H:3.58 XTAL (Not used.)
20	NT JUDGE	I	4.43/3.58 judge input.
21	BLUE BACK ON	O	Not used.
22	PAL60	O	NTSC PB control signal. "H"when NTSC PB on pal TV.
23	TV/VTR	O	"L" when VTR mode, "H" when TV mode. (Not used.)
24	AV CONT	O	ON/OFF control.
25	MESECAM	I/O	"L" in NT mode.
26	CBC ON	O	Cable box control on. (Not used.)
27	MODE4	I	Mechanism section CAM encoder input.
28	MODE3	I	Mechanism section CAM encoder input.
29	MODE2	I	Mechanism section CAM encoder input.
30	MODE1	I	Mechanism section CAM encoder input.
31	CAM 12V	O	CAM motor reference voltage.
32	T/E LED	O	T/E LED output.
33	CAP TRQ2	O	Capstan current control signal 2. L: FF/REW to STOP.
34	CAP TRQ1	O	Capstan current control signal 1. L: SLOW speed down.
35	CAP STOP	O	Capstan STOP signal output.
36	FULL ERS	O	Full erase control.
37	NC	O	Not used.
38	NC	O	Not used.
39	MP	I	Fixed to L.
40	ASURA RESET	I	System reset input.
41	VSS	–	GND.
42	XTAL	–	System clock. (16 MHz)
43	EXTAL	–	
44	ASURA CS	I	S/S microcomputer chip select signal. (MA-283 board IC151)
45	S IN 0	I	Serial communication signal.
46	S OUT 0	O	Serial communication signal.
47	SCLK	O	Serial communication signal.
48	NICOLE ON	O	Not used.
49	F MONO	O	Tuner Audio Select. (Not used.)
50	EDIT	O	EDIT control.
51	LINE 3 CONT	O	Input selection control signal 3. (Not used.)
52	AVSS	–	UNSW GND.
53	AVREF	–	AD port reference input UNSW 5V.
54	AVDD	–	UNSW 5V.
55	APC ERROR	I	APC error input.
56	NTPB SW	I	NTSC PB switch.
57	DEST2	I	DEW sensor input. (Not used.)
58	VA ADJ	I	ADJ mode. 0V: SWP Adj, 2.5V: HiFi Adj
59	AF ENV	I	Hi-Fi audio playback signal envelope.
60	RF ENV	I	Video playback signal envelope.
61	T SENS	I	Take-up end sensor input.
62	S SENS	I	Supply end sensor input.
63	SREEL FG	I	S side reel FG input.
64	TREEL FG	I	T side reel FG input.
65	VDD	I	5V.
66	V SYNC	I	Composite sync input.
67	PB CTL	I	Playback CTL input.
68	DRM PG	I	Drum PG input.
69	DRM FG	I	Drum FG input.
70	CAP FG	I	Capstan FG input.
71	POWER SAVE CONT	O	Power save control signal output.
72	CAP RVS	O	Capstan reverse control H when reverse.
73	CAP DA	O	Capstan error D/A output.
74	DRM DA	O	Drum PG input.
75	CTL REC	O	"H" CTL write.
76	CTL STEP	O	CTL amp, STEP operation control.
77	VDD	I	5V.
78	VDD	O	5V.

Pin No.	Pin Name	I/O	Function
79	CTL INDEX	O	CTL INDEX signal input.
80	SO1	I/O	Signal for serial communication.
81	$\overline{\text{SCK1}}$	I/O	Signal for serial communication.
82	LINE2	I	Input selection control signal 2.
83	LINE1	I	Input selection control signal 1.
84	APC PWM	O	PWM output for APC.
85	NC	I	Not used.
86	NC	–	Not used.
87	NC	–	Not used.
88	VSS	–	GND.
89	VDD	–	5V.
90	NC	–	Not used.
91	ORC SETTEI	O	H when ORC measurement.
92	A MUTE	O	"H" when audio Mute.
93	$\overline{\text{SP}}$	O	Normal audio tape speed select.
94	NA $\overline{\text{SP}}$	O	Normal audio tape speed select. (Not used.)
95	NAPB	O	Audio output control signal H when normal audio playback. (Not used.)
96	AF REC	O	"H" output when hi-fi audio REC.
97	JOG	O	"H" when trick play mode.
98	$\overline{\text{VPB}}$	O	Video system playback mode "L" when playback.
99	STEP PLS	O	Step pulse H when capstan step driving.
100	AF SWP	O	AF switching pulse output.

7-9. TUNER/TIMER/MODE CONTROL PORT FUNCTION DESCRIPTION (MA-283 BOARD IC151 CXP82960-013Q)

Pin No.	Pin Name	I/O	Function
1	$\overline{\text{PDC DAV}}$	I	Line 21H output pulse. Pulse signal synchronized with line 21 of input video signal.
2	$\overline{\text{POWER FAIL}}$	I	Power failure detect signal input.
3	H DET	I	Video signal detect signal input.
4	H DET 2	I	Video signal detect for VHS block.
5	EEP BUSY	I	EEP Busy signal input.
6	SW1	O	Tuner system change signal output 1.
7	BUZZER	O	Buzzer output.
8	SW2	I	Tuner system change signal output 2.
9	EEP $\overline{\text{RST}}$	O	EEPROM reset signal output (stereo).
10	SCK0	O	Clock for serial communication.
11	SI0	I	Serial data input.
12	SO0	O	Serial data output.
13	EEP $\overline{\text{CS}}$	O	EEPROM chip select signal output. (MA-283 board IC153)
14	LANC IN	I	LANC input.
15	LANC OUT	O	LANC output.
16	POWER CONT 0	O	Power supply control for AUDIO block.
17	AU CS	O	SOUND microprocessor chip select. (FM-27 board IC101)
18	AU RESET	O	SOUND microprocessor reset signal output.
19	AU STOP	O	SOUND microprocessor halt signal output.
20	AU TEMP IN	I	Audio block power failure detect signal input.
21	AU WATT IN	I	Audio output level detect signal input.
22	AU FAN H/L	O	FAN motor speed select.
23	AFT	I	Key reading A/D input.
24	AVDD	–	UNSW 5V.
25	AV REF	–	AD port reference input UNSW 5V.
26	SCL0	O	I^{2}C BUS (clock)
27	CG $\overline{\text{CS}}$	O	Character generator chip select signal. (MA-283 board IC401)
28	SDA0	O	I^{2}C BUS (data)
29	N. C	–	Not used.
30	AVSS	–	UNSW GND.
31	EXTAL	–	System clock. (16 MHz)
32	XTAL	–	
33	VSS	–	GND.
34	$\overline{\text{RST}}$	I	Reset signal in.
35	PLL CLK	O	Tuner clock signal.
36	PLL DATA	O	Tuner data signal.
37	PLL ENABLE	O	Tuner enable signal.
38	C+CLK	O	CANAL+ control clock.
39	C+DET	I	CANAL+ detection.
40	C+DATA	O	CANAL+ control data.
41	TA MUTE	O	Tuner audio mute control signal.
42	AUTO PRESET	O	"H" during auto preset.
43-45	N. C	–	Not used.
46	CONT A	O	Video selector control output.
47	CONT B	O	Video selector control output.
48	A OUT CONT 1	O	Audio selector control output.
49	A OUT CONT 2	O	Audio selector control output.
50	LED POWER	O	Power LED control output.
51-71	N. C	–	Not used.
72	VDD	–	UNSW 5V.
73	TX	–	Connected to oscillator for clock.
74	TEX	–	
75	NC/VPP	–	Connected to 5V.
76	ASURA $\overline{\text{CS}}$	O	S/S microcomputer chip select. (MA-283 board IC201)
77	$\overline{\text{SYS RESET}}$	O	System reset signal output.
78	POWER CONT 1	O	Power supply control signal output.
79	POWER CONT 2	O	Power supply control signal output for PDC.
80	CG V	I	Vertical sync. signal input.

7-10. SOUND CONTROL MICROPROCESSOR PORT FUNCTION DESCRIPTION (FM-27 BOARD IC101 CXP82948-008Q)

Pin No.	Pin Name	I/O	Function
1	STOP	I	Halt signal input.
2	AUTO STOP	–	Not used. (reserved)
3	STEREO	–	Not used. (reserved)
4	SIRCS	I	SIRCS signal input.
5	PHONE IN	I	Phone insert detect input.
6	VOL UP	O	Motor driver control CW for master volume.
7	N. C	–	Not used.
8	–20dB MUTE	O	20 dB mute signal output.
9	AU CS	I	Microprocessor chip select.
10	SCK	I	Clock for serial communication.
11	SI	I	Serial data input.
12	SO	O	Serial data output.
13	LED CLK	O	Clock for LED driver.
14	VOL DOWN	O	Motor driver control CCW for master volume.
15	LED DATA	O	Data for LED driver.
16	A/SIGNAL	–	Noy used. (reserved)
17	KEY AD1	I	Key reading A/D input.
18	KEY AD2	I	Key reading A/D input.
19	S CLK	O	Clock for SOUND periferal serial communication.
20	S DATA	O	Data for SOUND periferal serial communication.
21	PLL DATA	–	Not used. (reserved)
22	DMS 1	I	DMS encoder phase 1 signal input.
23	DMS 2	I	DMS encoder phase 2 signal input.
24	AVDD	–	UNSW 5V.
25	AVREF	–	AD port reference input UNSW 5V.
26	TONE CS	O	Tone controller chip select. (SR-24 board IC401)
27	LED CS	O	Chip select for LED driver. (FM-27 board IC201)
28	S CE1	O	Chip select for selector.
29	S CE2	O	Chip select for surround IC.
30	AVSS	–	GND.
31	EXTAL	–	System clock. (16 MHz)
32	XTAL	–	
33	VSS	–	GND.
34	RST	I	Reset signal input.
35	KEY MAT0	I	Key reading input.
36	KEY MAT1	I	Key reading input.
37	KEY MAT2	I	Key reading input.
38	KEY MAT3	I	Key reading input.
39	T MUTE	O	Not used. (reserved)
40	IC MUTE	O	Audio mute control output.
41	FUNC MUTE	O	Audio mute control output.
42	LOW BOOST	O	Audio bass boost mode control output.
43	VFDP	–	"-30V".
44-58	SEG 1-15	O	VFP segment output.
59	N. C	–	Not used. (reserved)
60-71	GRID 12-1	O	VFP grid output.
72	VDD	–	UNSW 5V.
73	TX	–	Not used. (reserved)
74	TEX	–	Not used. (reserved)
75	NC/VPP	–	Connect to +5V.
76	BRIDGE	O	Audio supply voltage select relay control.
77	PHONE RY	O	Phone relay control output.
78	SURR RY	O	Surround relay control output.
79	SP RY	O	Main speaker ralay control output.
80	PROTECT	I	Speaker protection detect signal input.

SECTION 8
ADJUSTMENTS

8-1. MECHANICAL ADJUSTMENTS

For the procedures how to adjust and check the mechanism, as well as how to replace mechanical parts, refer to the VHS Mechanical Adjustment Manual IV (H MECHANISM) (9-973-623-11).
However, for the procedures how to see the Track Shift mode, refer to the following text.

8-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 8-12 for the adjustment.

2-1. PREPARATION BEFORE ADJUSTMENT

2-1-1. Equipment Required

The measuring instruments used for this alignment include:

[Instruments for Use]

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30MHz or more, with delay mode (A prove 10 : 1 should be used unless otherwise specified.)
3) Frequency counter (8 columns or more)
4) PAL pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Distortion rate meter
10) Modulation Analyzer
11) Alignment tape
    Part No. : H7099052H (MH-2)
13) Extension cable
    ① FM-27 Board
    - FM-27 board CN102←→SR-24 board CN201
      Part No. J-6090-063-A (23pin)
    ② MA-283 Board
    - MA-283 board CN903←→FM-27 board CN101
      Part No. J-6090-064-A (19pin)
    ③ MD-69 Board
    - MD-69 board CN650←→MA-283 board CN902
    - MD-69 board CN651←→MA-283 board CN904
      Part No. J-6090-066-A (12pin)
    ④ IO-56 Board
    - IO-56 board CN104←→RP-213 board CN601
      Part No. J-6090-065-A (17pin)

2-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown is the following diagram.

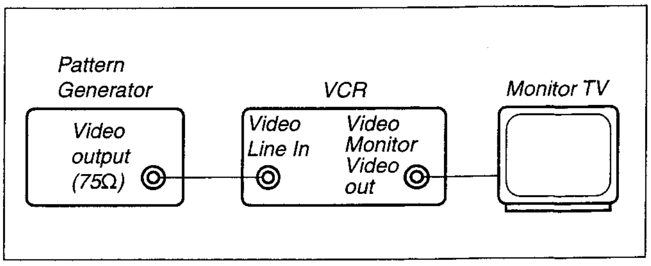


Fig. 8-2-1.

Unless otherwise specified, place the switches and controls of this unit in the following positions :

- VHS switch .... LINE
- TAPE SPEED (SP/LP) switch .... SP

2-1-3. Check of Input Signal

Because the video signal obtained from the pattern generator is used as the adjustment signal for the adjustment, the video output signal is required to satisfy the specified value.

Connect the oscilloscope to the picture input terminal (terminal board). And check that the synchronizing signal amplitude of the video signal is approximately 0.3V, the amplitude of the picture part is approximately 0.7V, the amplitude of the burst signal is approximately 0.3V and is flat, and the ratio of level between the burst signal and the "red" signal is 0.33 : 0.66. The video signal (color bar) used for the adjustment is shown in the fig. 8-2-2.

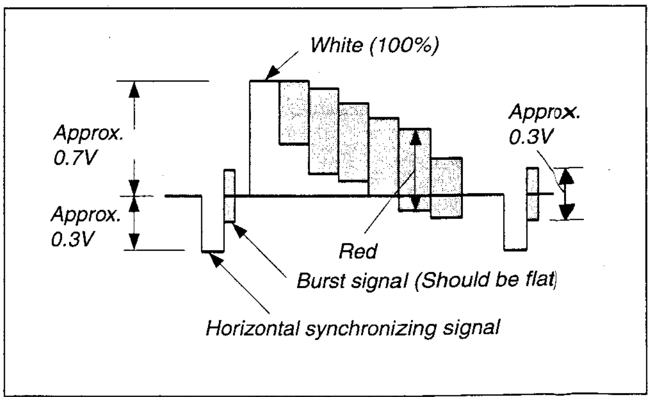

White (100%)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Burst signal (Should be flat)
Horizontal synchronizing signal

Fig. 8-2-2. Color bar signal of the pattern generator

2-1-4. Alignment Tape

- Contents of MH-2 (Normal-VHS)

	Mode	Period	Video signal	Audio signal
1	SP	10 minutes	Stair step	7kHz
2		5 minutes	———	3kHz
3		10 minutes	Color bar	1kHz
4		3 minutes	RF sweep	———

2-1-5. Specified Input-output Level and the Impedance

VCR

VIDEO OUT (EURO-AV)
EURO LINE IN (UX)
PAY-TV DECODER/CANAL + (B/NP/VC)
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3

VIDEO 1 IN
VIDEO 2 INPUT
LINE IN (B/NP/VC)
VIDEO IN, phono jack (1)
Input signal: 1 Vp-p, 75 Ω
unbalanced, sync negative
AUDIO IN, phono jacks (2)
Input level: 327 mVrms
Input impedance: more than 47 kΩ

MONITOR VIDEO OUT
Phono jack (1)
Output signal: 1 Vp-p, 75 Ω
(unbalanced), sync negative

AUDIO OUT (B/NP/VC)
Phono jacks (2)
Rated output level: 327 mVrms
Load impedance: 47 kΩ
Output impedance: less than 10 kΩ

Amplifier

POWER OUTPUT
STEREO MODE
DIN 1kHz, 4 Ω, 75 W+75 W

SURROUND MODE
(DIN 1kHz, 4 Ω)

Front	50 W/ch
Center	50 W (only in the PROLOGIC and THEATRE mode)
Rear	50 W

FREQUENCY RESPONSE
TUNER, CD, TAPE/MD, VIDEO 1, VIDEO 2, TV, and LINE: 10 Hz-20 kHz ±1 dB

INPUTS
CD

Sensitivity	220 mV
Impedance	50 kΩ
S/N	82 dB
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5V)

TUNER, TAPE/MD, VIDEO1, VIDEO2, TV, and LINE

Sensitivity	180 mV
Impedance	50 kΩ
S/N	82 dB
(Weighting network, input level)	82 dB ('78 IHF) (A, 0.5 V)

OUTPUTS
TAPE/MD REC OUT
Voltage 180 mV,
Impedance 10 kΩ
MIX OUT
Voltage: 2 V
Impedance: 10 kΩ
PHONES
Accepts low and high impedance headphones

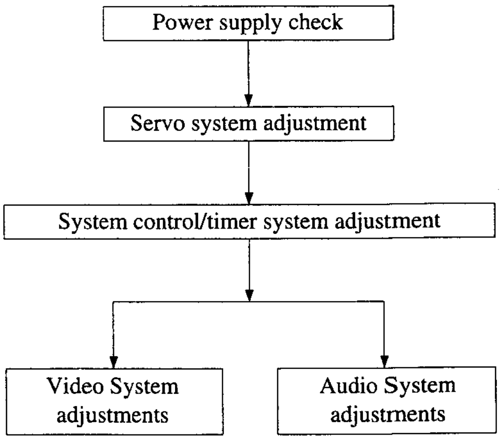
MUTING
-20 dB

BASS BOOST
+10 dB at 70 Hz

TONE
±8 dB at 100 Hz and 10 kHz

2-1-6. Adjustment Procedures

Perform the adjustment following the procedures given below.

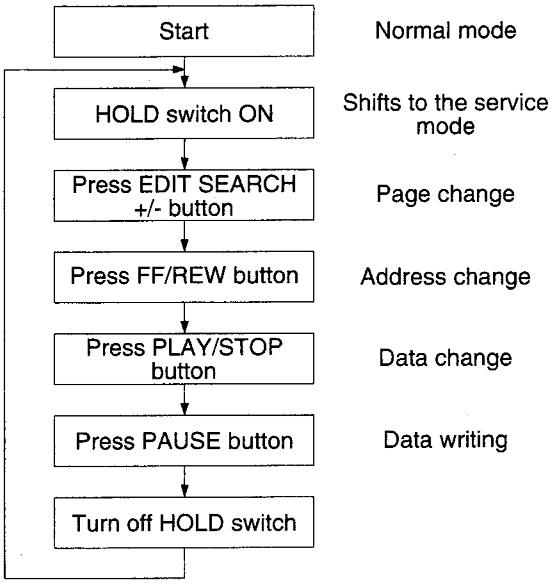


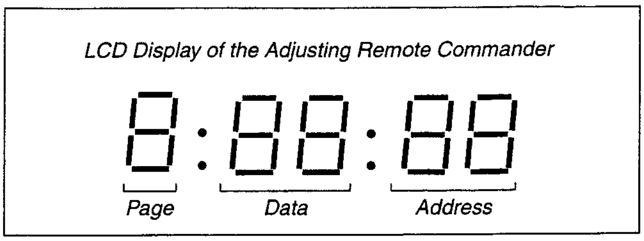
2-2. SERVICE MODE

2-2-1. Setting the Service Mode

The service mode consists of the adjustment mode which adjusts the EVR and the test mode which shows the condition of the unit.
The unit can be set into the test mode and adjustment mode by connecting the adjusting remote commander (Set the HOLD switch to "HOLD").

1) Shifting to the service mode using the adjusting remote commander


Start
Normal mode
HOLD switch ON
Shifts to the service mode
Press EDIT SEARCH +/- button
Page change
Press FF/REW button
Address change
Press PLAY/STOP button
Data change
Press PAUSE button
Data writing
Turn off HOLD switch


LCD Display of the Adjusting Remote Commander
Page
Data
Address

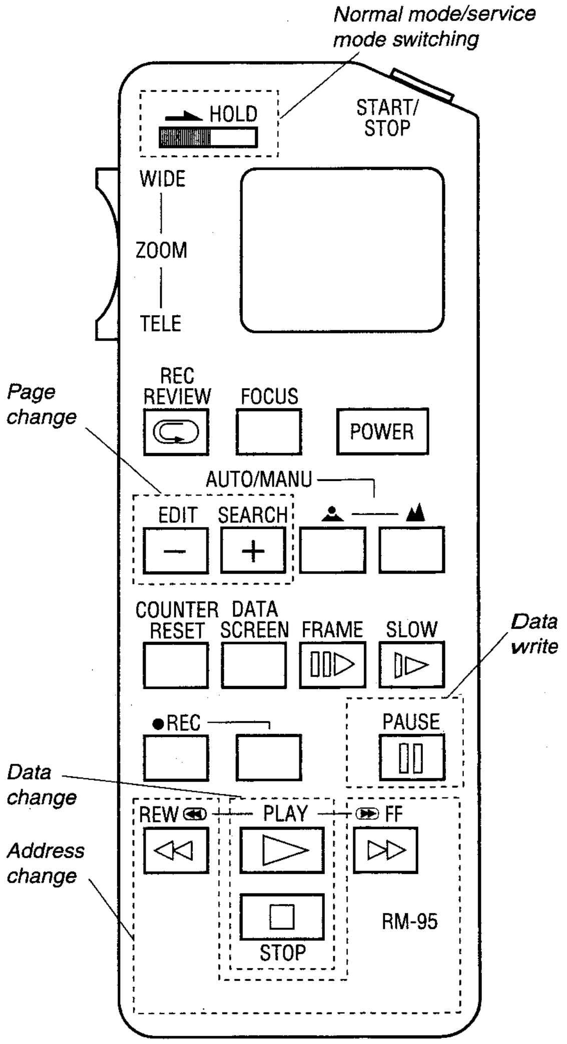
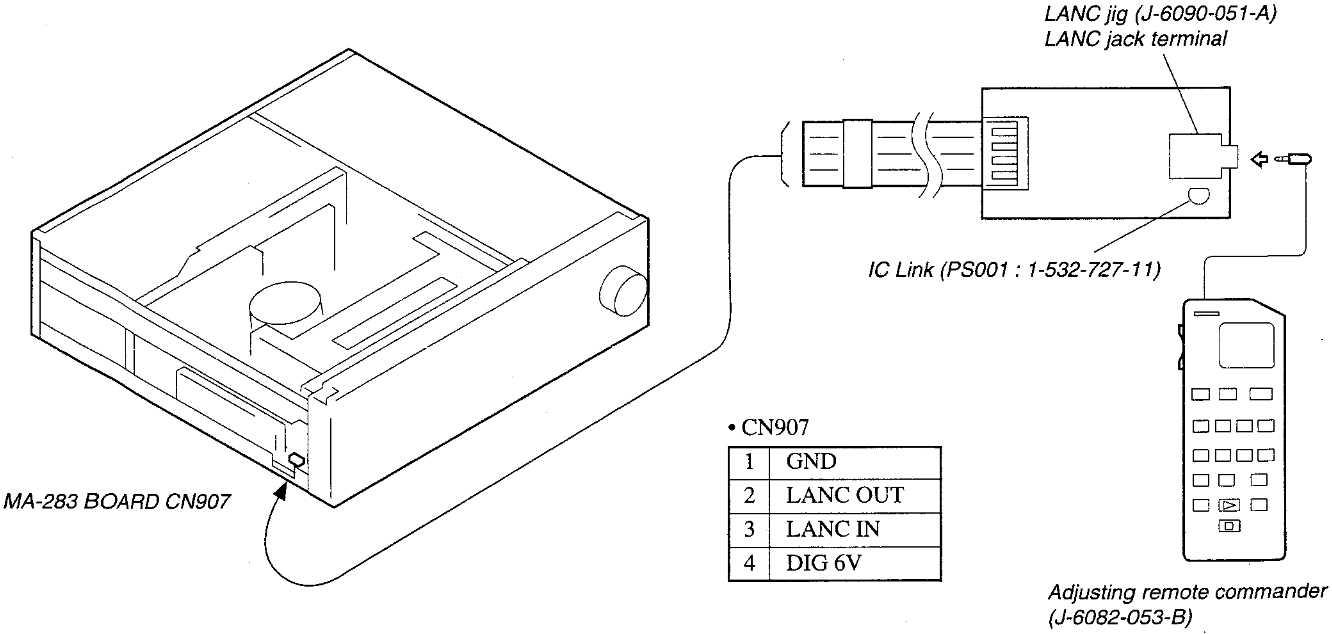

Normal mode/service mode switching
HOLD
START/ STOP
WIDE
ZOOM
TELE
Page change
REC REVIEW
FOCUS
POWER
AUTO/MANU
EDIT
SEARCH
COUNTER RESET
DATA SCREEN
FRAME
SLOW
Data write
●REC
PAUSE
Data change
REW
PLAY
FF
Address change
STOP
RM-95

Fig. 8-2-3. Adjusting remote commander RM-95 (J-6082-053-B)

Command Name	Command Function	Normal LANC Command
Page Up	Page +1	Edit Search +
Page Down	Page –1	Edit Search –
Direct Page Set	Sets to the specified page	Event Clear
Address Up	Address +1	Fast Forward
Address Down	Address –1	Rewind
Data Up	Data +1	Play Back
Data Down	Data –1	Stop
Store	Writes data in the EEPROM, RAM	Pause

2) Adjusting remote commander connecting procedure.
SLV-AV100 series does not have the LANC jack for LANC adjusting remote commander. When adjusting, connect the LANC jig (J-6090-051-A) to CN907 on MA-283 board.

> **Note:** When connecting or disconnecting LANC jig to CN907 on MA-283 board, first connect the adjusting remote commander to the jack on LANC jig before connecting LANC jig to CN907.
> Connection or disconnection of the adjusting remote commander in the condition LANC jig is connected to CN907 causes IC link to damage itself.



- CN907

1	GND
2	LANC OUT
3	LANC IN
4	DIG 6V

Fig. 8-2-4.

2-2-2. Page F Data Modification

The data (initial data) that is automatically written on page F after the initialization of the page F data will differ according to micro processor versions. Change the data by manual input, and arrange it.

Note 1: When changing the data, to write the data to the non-volatile memory, press the PAUSE button of the adjusting remote control unit every time the new data is set.

Part Name	Version
CXP82960-013Q	Ver. 01

Address	B	NP	UX	VC
01	01	01	01	01
02	12	13	10	11
93	25	20	24	20
94	00	00	00	00
B5	30	30	30	20
B6	10	10	10	10
B9	01	01	02	02
BA	07	FF	16	FF

2-3. POWER SUPPLY CHECK

2-3-1. Output Voltage Check 1 (PS-379 Board)

Mode	E-E
Measuring instrument	Digital voltmeter
+ FV check	
Measurement point	CN202 pin④ (GND : pin①)
Specified value	4.3±1.0Vdc
- 30V check	
Measurement point	CN202 pin②
Specified value	– 30±3Vdc
- 8V check	
Measurement point	CN202 pin⑤
Specified value	– 13.5±2.0Vdc
D 6V check	
Measurement point	CN202 pin⑥, CN203 pin⑦
Specified value	5.9±0.5Vdc
SW 12V check	
Measurement point	CN202 pin⑧, CN203 pin⑨
Specified value	11.9±0.5Vdc
13V check	
Measurement point	CN202 pin⑫, CN203 pin⑩⑪
Specified value	13±1Vdc
38V check	
Measurement point	CN202 pin⑬
Specified value	38±3Vdc
SW 5V check	
Measurement point	CN202 pin⑭, CN203 pin⑤
Specified value	5.2±1.0Vdc
MTR 12V check	
Measurement point	CN203 pin①②
Specified value	12.1±1.0Vdc

[Check Method]

1) Check that each voltage satisfied the specified value.

Note : AC input voltage = 230±5Vac (AC-106 board)

2-3-2. Output Voltage Check 2 (MP-43 Board)

Mode	E-E
Measuring instrument	Digital voltmeter
40V check	
Measurement point	CN602 pin④
Specified value	42±3Vdc
- 40V check	
Measurement point	CN602 pin⑤
Specified value	– 42±3Vdc
+ UNREG check	
Measurement point	CN802 pin⑨
Specified value	19±1.5Vdc
- UNREG check	
Measurement point	CN802 pin⑧
Specified value	– 19±1.5Vdc
24V check	
Measurement point	CN704 pin②
Specified value	24±2Vdc

2-4. SERVO SYSTEM ADJUSTMENT

2-4-1. RF Switching Position Adjustment (RP-213 Board)

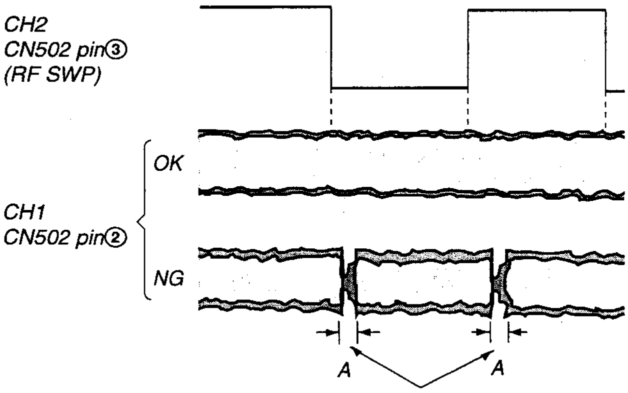
[Adjustment Object]

To adjust the link of the Ach and Bch of the tape playback outputs. If this specification is not satisfied, the noise will increase and cracking sounds will be produced.

Mode	Playback
Signal	Alignment tape : Color bar portion
Measurement point	CH1 : CN502 pin② (RF MONI)(RP-213 board) CH2 : CN502 pin③ (RF SWP)(RP-213 board)
Measuring instrument	Oscilloscope
Adjustment element	PROGRAM +/– button
Specified value	No dropouts in the RF signal

[Adjusting Method]

1) Playback the alignment tape. short the adjustment land JL207 (MA-283 board) to the ground for 300 msec or more to enter the RF SWP adjustment mode.
2) Verify that "AD RF xx (xx : data value)" are indicated on the display tube.
3) Use PROGRAM +/– buttons to adjust so that the portion A is minimized.
4) Press PAUSE and write the data.


CH2
CN502 pin③
(RF SWP)
OK
CH1
CN502 pin②
NG
A
A

RF signal dropout (Should be minimized)

Fig. 8-2-5.

2-5. SYSTEM CONTROL/TIMER SYSTEM CHECK

2-5-1. Clock Check (MA-283 Board)

[Check Object]

To raise the accuracy of the clock.

If the clock is not accurate, its error difference will gradually increase.

Measurement point	IC151 pin⑦ (BUZZER OUT)
Measuring instrument	Frequency counter (Interval counter mode)
Specified value	0.1249995±0.0000005sec

[Check Method]

1) Connect the LANC jig and the adjusting remote commander.
2) Release the protect.
   Page : 1, Address : 00, Data : 80.
3) Page : 2, Address : 00, Data : 02.
4) Page : 2, Address : 01, Data : 01.
5) After verification, turn the power off once to reset.

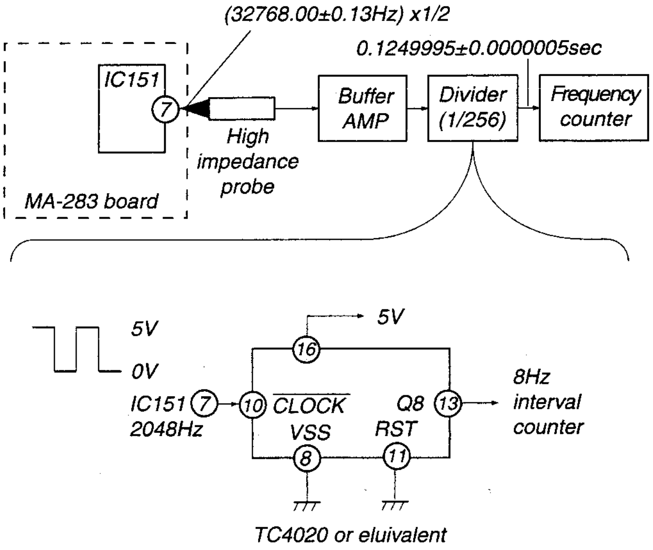

(32768.00±0.13Hz) x1/2
0.1249995±0.0000005sec
IC151
⑦
MA-283 board
High impedance probe
Buffer AMP
Divider (1/256)
Frequency counter
5V
0V
5V
⑯
IC151 ⑦
2048Hz
⑩ CLOCK
VSS
Q8 ⑬
RST
⑧
⑪
8Hz interval counter
TC4020 or eluivalent

Fig. 8-2-6.

2-6. VIDEO SYSTEM ADJUSTMENTS

For the video system adjustment, follow the adjustment procedures given below as a rule. The color bar video signal supplied from the pattern generator is used as the video input signal for the video system adjustment of the recording mode. Check that the signal satisfies the specified value designated in the "Check of input signal (Fig. 8-2-2).

[Adjustment Sequence]

1) X'tal OSC Check
2) SYNC AGC Check
3) White Clip/Dark Clip Check
4) REC Y Level Check
5) REC Chrome Level Check
6) Playback Level Check

2-6-1. X'tal OSC Check (MA-283 Board)

Mode	Playback
Signal	Alignment tape : Color bar portion
Measurement point	IC301 pin㉓
Measuring instrument	Oscilloscope and Frequency counter
Specified value	PAL : 4,433619±96Hz

Note : A frequency counter should be connected through a buffer ampifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Check Method]

1) Check that the oscillation frequency satisfies the specified value and that the oscillation voltage is 450±200mVp-p.

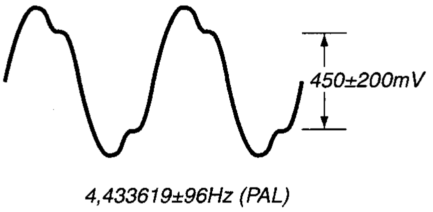


Fig. 8-2-7.

2-6-2. SYNC AGC Check (MA-283 Board)

Mode	E-E
Signal	Color bar
Measurement point	Video monitor video output terminal
Measuring instrument	Oscilloscope
Specified value	A=2.02±0.14Vp-p

[Check Method]

1) Check that the SYNC AGC level (A) satisfies the specified value.

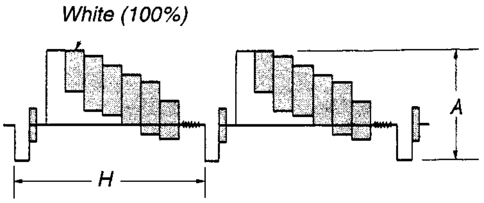


Fig. 8-2-8.

2-6-3. White Clip/Dark Clip Check (MA-283 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC301 pin㉜
Measuring instrument	Oscilloscope
Specified value	White clip : A=190±15% Dark clip : B=52±10%

[Check Method]

1) Check that the white clip level A is 190±15% to the white (100%) level.
2) Check that the dark clip level B is 52±10% to the white (100%) level.

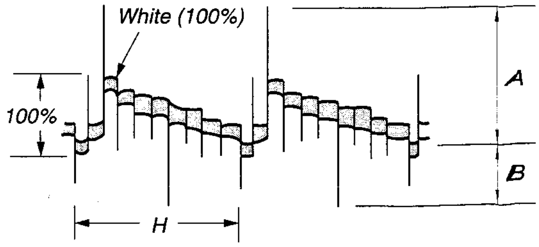


Fig. 8-2-9.

2-6-4. REC Y Level Check (MA-283 Board)

Mode	E-E
Signal	Color bar
Measurement point	Q352Ⓔ
Measuring instrument	Oscilloscope
Specified value	A=950±100mVp-p

[Check Method]

1) Check that the record Y level satisfies the specified value.

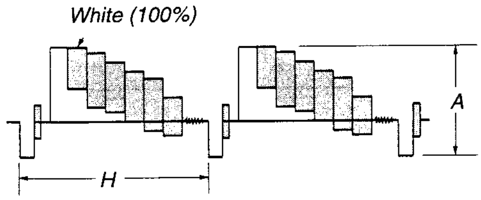


Fig. 8-2-10.

2-6-5. REC Chroma Level Check (MA-283 Board)

Mode	E-E
Signal	Color bar
Measurement point	IC301 pin㉚
Measuring instrument	Oscilloscope
Specified value	A=160±23mVp-p

[Adjusting Method]

1) Check that the record chroma level satisfies the specified value.

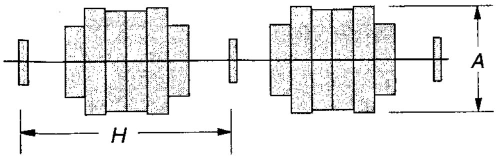


Fig. 8-2-11.

2-6-6. Playback Level Check (MA-283 Board)

Mode	Playback
Signal	Alignment tape : Color bar portion
Measurement point	Video monitor video output terminal
Measuring instrument	Oscilloscope
Specified value	A=1.97±0.18Vp-p

[Check Method]

1) Check that the playback level satisfies the specified value.

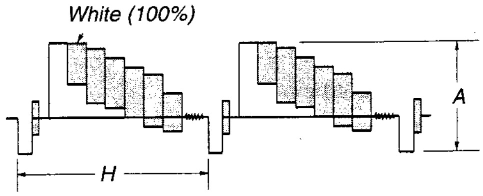


Fig. 8-2-12.

2-7. AUDIO SYSTEM ADJUSTMENTS

- For the adjustment of the audio system, perform in the SP mode if there is no special notes. Use the alignment tape.
- Adjust both LCH and RCH.

[Connecting Instruments]

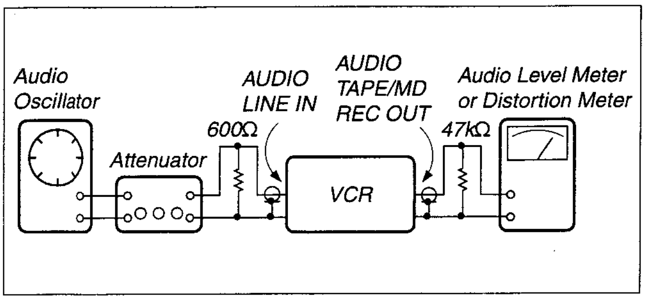


Fig. 8-2-13.

● Hi-Fi Audio System Adjustment

Perform the adjustment setting the switches and controls on the following positions if there is no special indications.

- AUDIO switch .... LINE
- AUDIO MONITOR switch * .... Stereo

* : Remote commander

2-7-1. AF Switching Position Adjustment (RP-213 Board)

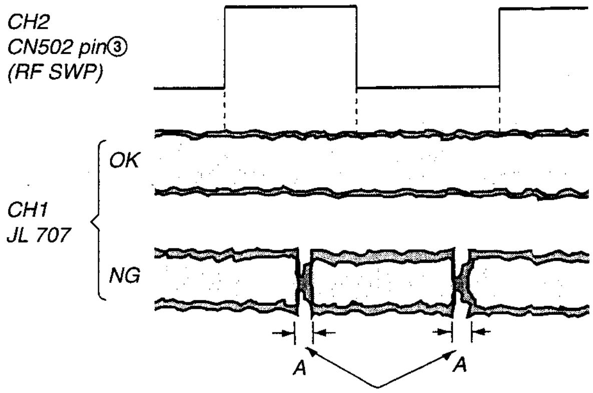
[Adjustment Object]

To adjust the link of the Ach and Bch of the tape playback outputs. If this specification is not satisfied, the noise will increase and cracking sounds will be produced.

Mode	Playback
Signal	Alignment tape
Measurement point	CH1 : JL707(RP-213 board) CH2 : CN502 pin③(RP SWP)(RP-213 board)
Measuring instrument	Oscilloscope
Adjustment element	PROGRAM +/– button
Specified value	No dropouts in the RF signal

[Adjusting Method]

1) Playback the alignment tape. short the adjustment land JL207 (MA-283 board) to the ground for 300 msec or more to enter the RF SWP adjustment mode.
2) Verify that "AD RF xx (xx : data value)" are indicated on the display tube.
3) Press REC button.
4) Verify that "AD HF xx (xx : data value)" are indicated on the display tube.
5) Use PROGRAM +/– buttons to adjust so that the portion A is minimized.
6) Press PAUSE and write the data.



RF signal dropout (Should be minimized)

Fig. 8-2-14.

Note : The RF SWP adjustment should be completed before performing this adjustment.

2-7-2. VCO f_0 Adjustment (MA-283 Board)

[Adjustment Object]

To attain Hi-Fi audio compatibility.
If this apecification is not satisfied, the sound will be distorted.

Mode	Recording
Signal	No-signal
Measuring instrument	Frequency counter
Measurement point	CN503 pin①
1.4MHz adjustment	
Adjustment element	RV521 (Lch)
Specified value	1400±1kHz
1.8MHz adjustment	
Adjustment element	RV531 (Rch)
Specified value	1800±1kHz

Note : Connect the frequency counter through the buffer amplifier (oscilloscope, etc) with high input resistance (1MΩ or more) and low capacity (10pF or less).

[Adjusting Method]

1) Connect pin④ of CN503 to the ground.
2) Set TRACKING button on the remote commander to AUTO.
3) Adjust RV521 so as to obtain 1400±1kHz.
4) Set TRACKING button on the remote commander to MANUAL.
5) Adjust RV531 so as to obtain 1800±1kHz.

2-7-3. Deviation Check (MA-283 Board)

Mode	Recording
Signal	400Hz, –7.5dBs : CN502 pin⑬⑮
Measurement point	CN503 pin①
Measuring instrument	Modulation Analyzer
Specified value	50±50kHz

[Check Method]

1) Connect pin④ of CN503 to the ground.
2) Set TRACKING button on the remote commander to AUTO.
3) Verify that the output signal satisfies the specification.
4) Set TRACKING button on the remote commander to MANUAL.
5) Verify that the output signal satisfies the specification.

2-7-4. Band Pass Filter f_0 Adjustment (MA-283 Board)

[Adjustment Object]

To separate the carrier accurately and ensure that the filter for cutting the video signal functions normally.
If this specification is not satisfied, the sound will be distored.

Mode	Playback
Signal	1,608MHz, 200mVp-p : CN503 pin③
Measurement point	CN503 pin①
Measuring instrument	Oscilloscope
Adjustment element	RV541
Specified value	Adjust the A and B amplitudes to the same level. (A–B=±2mVp-p)

[Adjusting Method]

1) Connect pin④ of CN503 to the ground.
2) Set TRACKING button on the remote commander to AUTO. (Lch signal output)
3) Assume the output value at this time as A.
4) Set TRACKING button on the remote commander to MANUAL. (Rch signal output)
5) Assume the output value at this time as B. Adjust RV541 so that A is equal to B.

● Normal Audio System Adjustment

- Adjust in the SP mode if there is no special indications.
- Perform the adjustment setting the switch on the following positions.
- [AUDIO] switch .... LINE
- [AUDIO MONITOR] switch * NORMAL*1

*1 : No indicates on the display window indicator and monitor TV.

[Adjustment Sequence]

1) ACE head adjustment .... Refer to the VHS mechanical part adjustment manual IV
2) Recording bias check
3) E-E output level check
4) Overall output level and distortion factor check.
5) Overall noise level check.

2-7-5. ACE Head Adjustment

Refer to the "VHS Mechanical adjustment manual IV" (9-973-623-11).

2-7-6. Recording Bias Check (MA-283 Board)

Mode	Self-record playback
Signal	400Hz, – 27.5dBs } Audio line in 7kHz, – 27.5dBs } (L or R)
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter
Specified value	0±3dBs

[Adjusting Method]

1) Supply a signal of 400Hz, –27.5dBs to Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate –27.5dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7kHz and make recording.
6) Playback a recorded portion, and measure output levels at 400Hz and 7kHz.
7) Confirm that the 7kHz playback output levels within a range of the 400Hz playback output level 0±3dB.

2-7-7. E-E Output Level Check

Mode	E-E
Signal	400Hz, – 7.5dBs : Audio line in
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter
Specified value	– 7.5±2dBs

[Check Method]

1) Input signal of 400Hz and –7.5dBs to the L and R channel of the audio input at the same time.
2) Check that the audio output level is –7.5±2dBs.

2-7-8. Overall Output Level and Distortion Factor Check

Mode	Self-record playback
Signal	400Hz, –7.5dBs : Audio Line Input terminals, left and right
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter and Distortion meter
Specified value	Playback Level : –7.5±3dBs Distortion : 4.0% or less

[Check Method]

1) Record signal.
2) Playback the recorded portion.
3) Check that the output level is –7.5±3dBs.
4) Check that the distortion factor is 4.0% or less on the left and right side.

2-7-9. Overall Noise Level Check

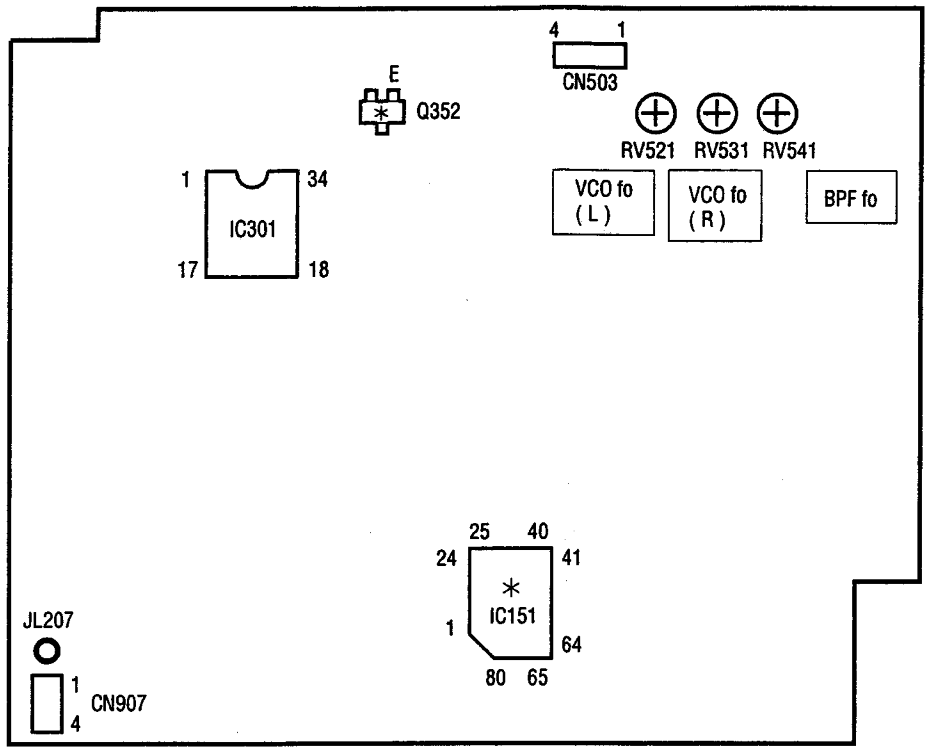
Mode	Self-record playback
Signal	No signal (Insert a shorting plug into the Audio Line Input jacks, left and right.)
Measurement point	Audio tape/MD REC out terminal
Measuring instrument	Audio level meter
Specified value	–46dBs or less

[Check Method]

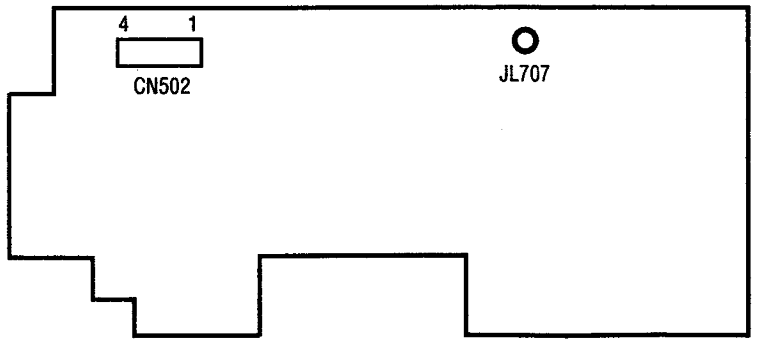
1) Record.
2) Playback recorded portion.
3) Check that noise level is –46dBs or less on the left and right side.

2-8. ADJUSTMENT PARTS LOCATION DIAGRAMS

MA-283 BOARD



RP-213 BOARD



* : Parts on conductor side.

SLV-AV100B/NP/UX/VC

RMT-V193/V193A

V/619

SONY

SERVICE MANUAL

AEP Model
SLV-AV100B/NP/VC
UK Model
SLV-AV100UX

CORRECTION

Correct your service manual as shown below.
(97-015)

___ : **indicates corrected portion.**

Page	INCORRECT						CORRECT				
	Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description		Remark
6-31	*	1-663-361-11	TO-12 BOARD								
	R901	1-249-377-11	CARBON	0.47	5%	1/4W	R901	1-249-470-11	CARBON	0.47	1/2W
	R902	1-249-377-11	CARBON	0.47	5%	1/4W	R902	1-249-470-11	CARBON	0.47	1/2W

97F0459-1
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Published by General Engineering Dept.
(Osaki East)

Sony Corporation
Home A&V Products Company

SLV-AV100B/NP/UX/VC

RMT-V193/V193A

SONY

SERVICE MANUAL

AEP Model
SLV-AV100B/NP/VC
UK Model
SLV-AV100UX

SUPPLEMENT

File this supplement with the service manual.
(SL-600473)

Subject : SLV-AV100B IO-63 board addition

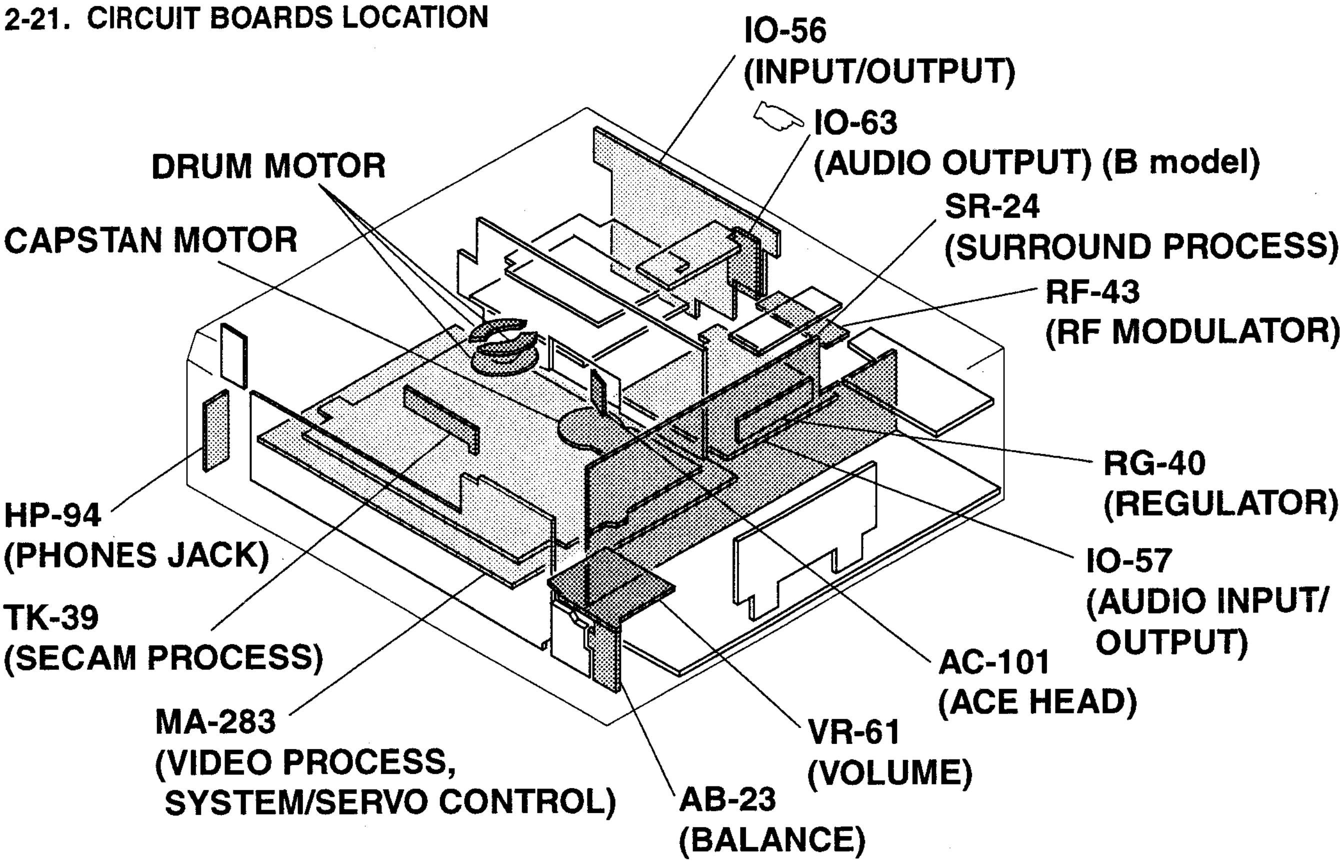
- **Changed portion**

FORMER				NEW			
Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
		—				IO-63 BOARD (Supplied with IO-56 (B) board)	
*	A-6794-280-A	IO-56 BOARD, COMPLETE (B)		*	A-6796-606-A	IO-56 BOARD, COMPLETE (B) (Including IO-63 board)	
*	A-6794-282-A	IO-57 BOARD, COMPLETE (B)		*	A-6796-607-A	IO-57 BOARD, COMPLETE (B)	

SECTION 2
DISASSEMBLY

- ☞ : Added portion
- Service manual Page 2-11E

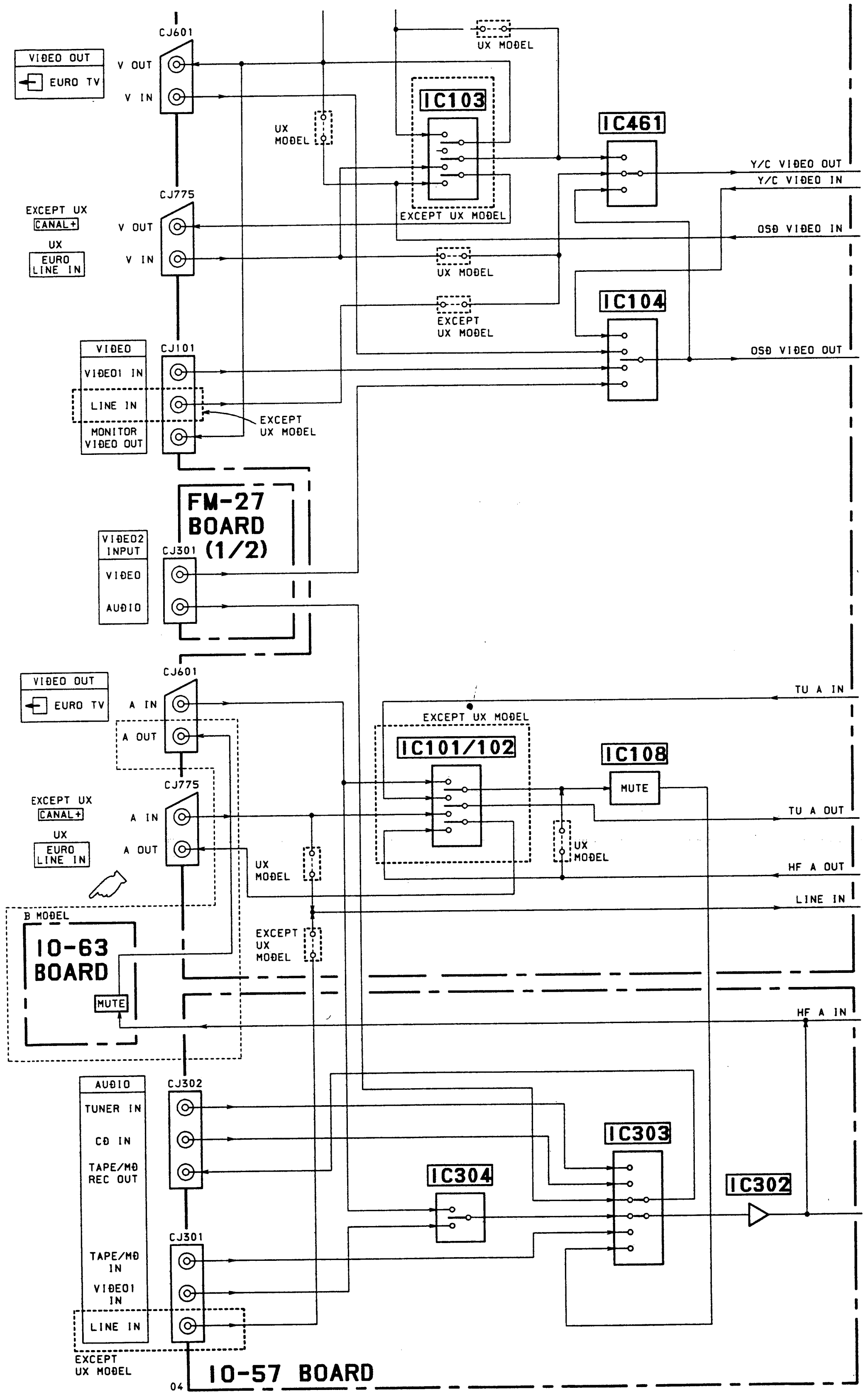
2-21. CIRCUIT BOARDS LOCATION


IO-56
(INPUT/OUTPUT)
☞ IO-63
(AUDIO OUTPUT) (B model)
DRUM MOTOR
SR-24
(SURROUND PROCESS)
CAPSTAN MOTOR
RF-43
(RF MODULATOR)
RG-40
(REGULATOR)
HP-94
(PHONES JACK)
IO-57
(AUDIO INPUT/
OUTPUT)
TK-39
(SECAM PROCESS)
AC-101
(ACE HEAD)
MA-283
(VIDEO PROCESS,
SYSTEM/SERVO CONTROL)
VR-61
(VOLUME)
AB-23
(BALANCE)

SECTION 4
BLOCK DIAGRAMS

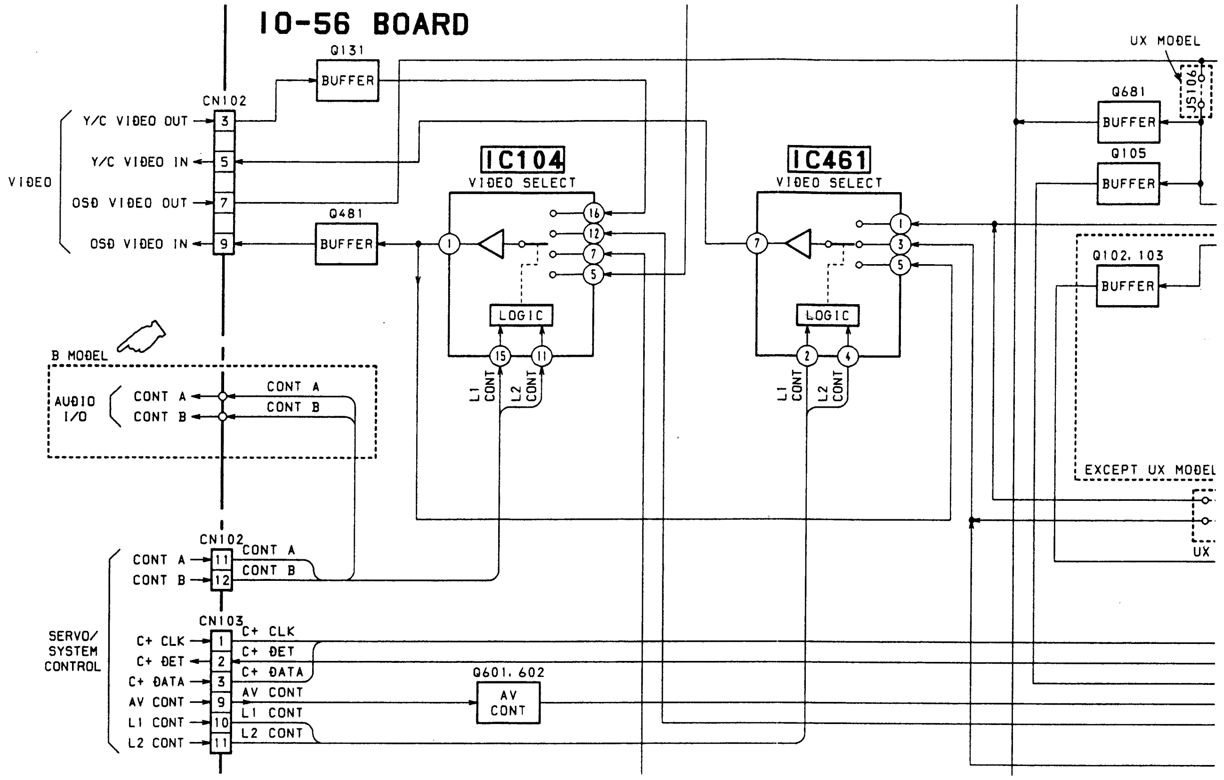
- ☞ : Added portion
- Service manual Page 4-1

4-1. OVERALL BLOCK DIAGRAM


CJ601
VIDEO OUT
EURO TV
V OUT
V IN
UX MODEL
IC103
IC461
UX MODEL
EXCEPT UX MODEL
CJ775
EXCEPT UX
CANAL+
UX
EURO LINE IN
Y/C VIDEO OUT
Y/C VIDEO IN
OSD VIDEO IN
UX MODEL
EXCEPT UX MODEL
IC104
OSD VIDEO OUT
VIDEO
CJ101
VIDEO1 IN
LINE IN
MONITOR VIDEO OUT
EXCEPT UX MODEL
FM-27 BOARD (1/2)
VIDEO2 INPUT
CJ301
VIDEO
AUDIO
CJ601
VIDEO OUT
EURO TV
A IN
A OUT
TU A IN
EXCEPT UX MODEL
IC101/102
IC108
MUTE
CJ775
EXCEPT UX
CANAL+
UX
EURO LINE IN
A IN
A OUT
TU A OUT
UX MODEL
UX MODEL
HF A OUT
LINE IN
B MODEL
10-63 BOARD
MUTE
EXCEPT UX MODEL
HF A IN
AUDIO
CJ302
TUNER IN
CD IN
TAPE/MD REC OUT
IC303
IC304
IC302
CJ301
TAPE/MD IN
VIDEO1 IN
LINE IN
EXCEPT UX MODEL
10-57 BOARD

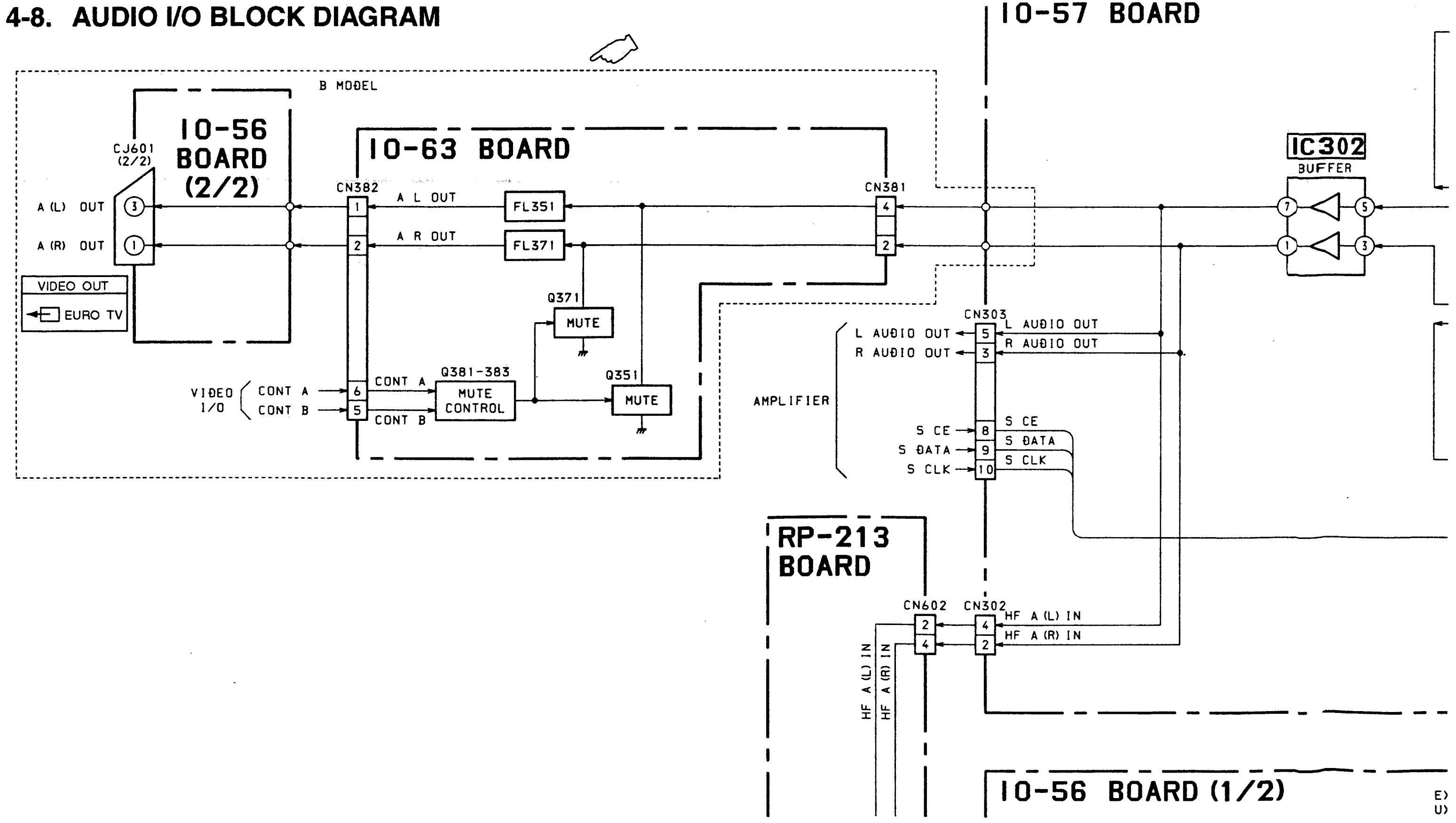
- Service manual Page 4-20

4-7. VIDEO I/O BLOCK DIAGRAM


10-56 BOARD
Q131
BUFFER
CN102
VIDEO
Y/C VIDEO OUT
Y/C VIDEO IN
OSD VIDEO OUT
OSD VIDEO IN
Q481
BUFFER
IC104
VIDEO SELECT
LOGIC
L1 CONT
L2 CONT
IC461
VIDEO SELECT
LOGIC
L1 CONT
L2 CONT
UX MODEL
Q681
BUFFER
Q105
BUFFER
Q102, 103
BUFFER
EXCEPT UX MODEL
UX
B MODEL
AUDIO I/O
CONT A
CONT B
CN102
CONT A
CONT B
CN103
SERVO/SYSTEM CONTROL
C+ CLK
C+ DET
C+ DATA
AV CONT
L1 CONT
L2 CONT
Q601, 602
AV CONT

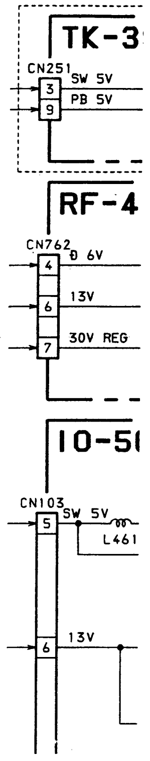
- Service manual Page 4-21

4-8. AUDIO I/O BLOCK DIAGRAM


10-57 BOARD
B MODEL
10-56 BOARD (2/2)
CJ601 (2/2)
A (L) OUT
A (R) OUT
VIDEO OUT
EURO TV
10-63 BOARD
CN382
A L OUT
A R OUT
FL351
FL371
CN381
Q371
MUTE
Q381-383
MUTE CONTROL
Q351
MUTE
VIDEO I/O
CONT A
CONT B
IC302
BUFFER
AMPLIFIER
CN303
L AUDIO OUT
R AUDIO OUT
S CE
S DATA
S CLK
RP-213 BOARD
CN602
CN302
HF A (L) IN
HF A (R) IN
10-56 BOARD (1/2)

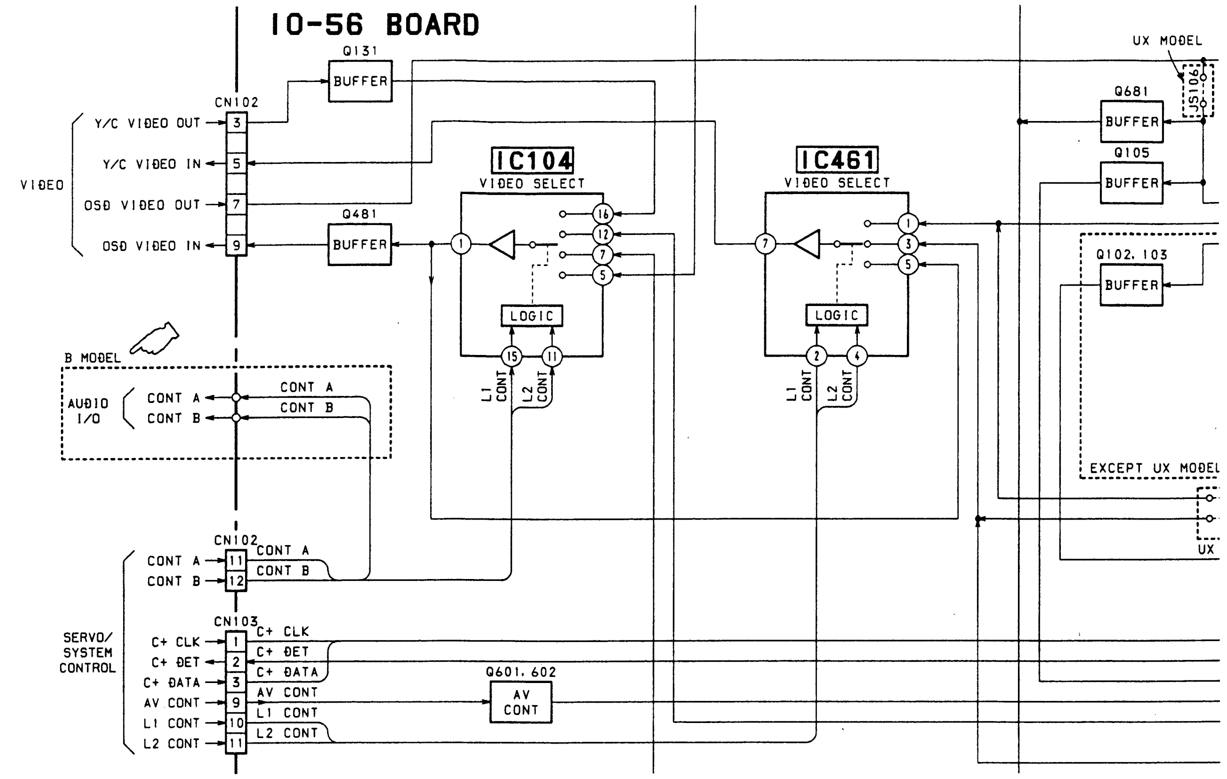
- Service ı

4-10. POW


TK-3
CN251
SW 5V
PB 5V
RF-4
CN762
D 6V
13V
30V REG
10-5
CN103
SW 5V
L461
13V

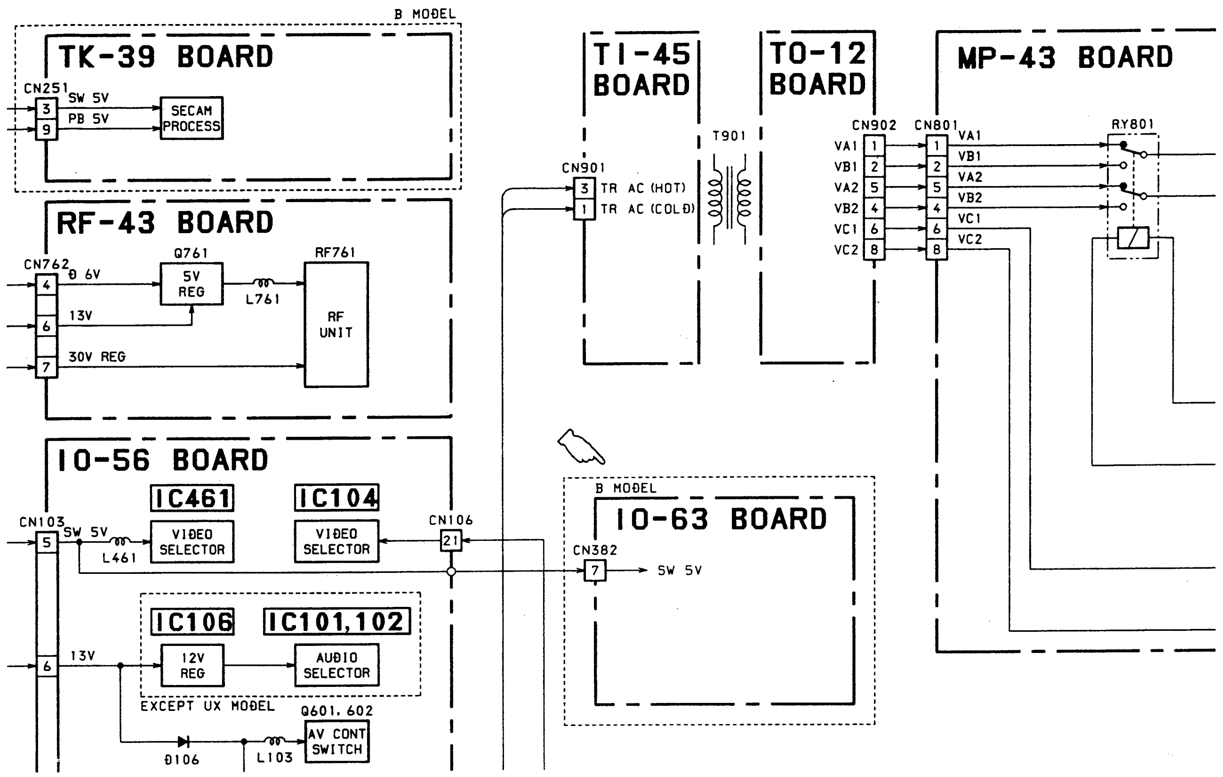
- Service manual Page 4-20

4-7. VIDEO I/O BLOCK DIAGRAM


10-56 BOARD
Q131 BUFFER
CN102
VIDEO
Y/C VIDEO OUT
Y/C VIDEO IN
OSD VIDEO OUT
OSD VIDEO IN
Q481 BUFFER
IC104 VIDEO SELECT
LOGIC
L1 CONT
L2 CONT
IC461 VIDEO SELECT
UX MODEL
Q681 BUFFER
Q105 BUFFER
Q102, 103 BUFFER
EXCEPT UX MODEL
UX
B MODEL
AUDIO I/O
CONT A
CONT B
SERVO/SYSTEM CONTROL
CN103
C+ CLK
C+ DET
C+ DATA
AV CONT
L1 CONT
L2 CONT
Q601, 602 AV CONT

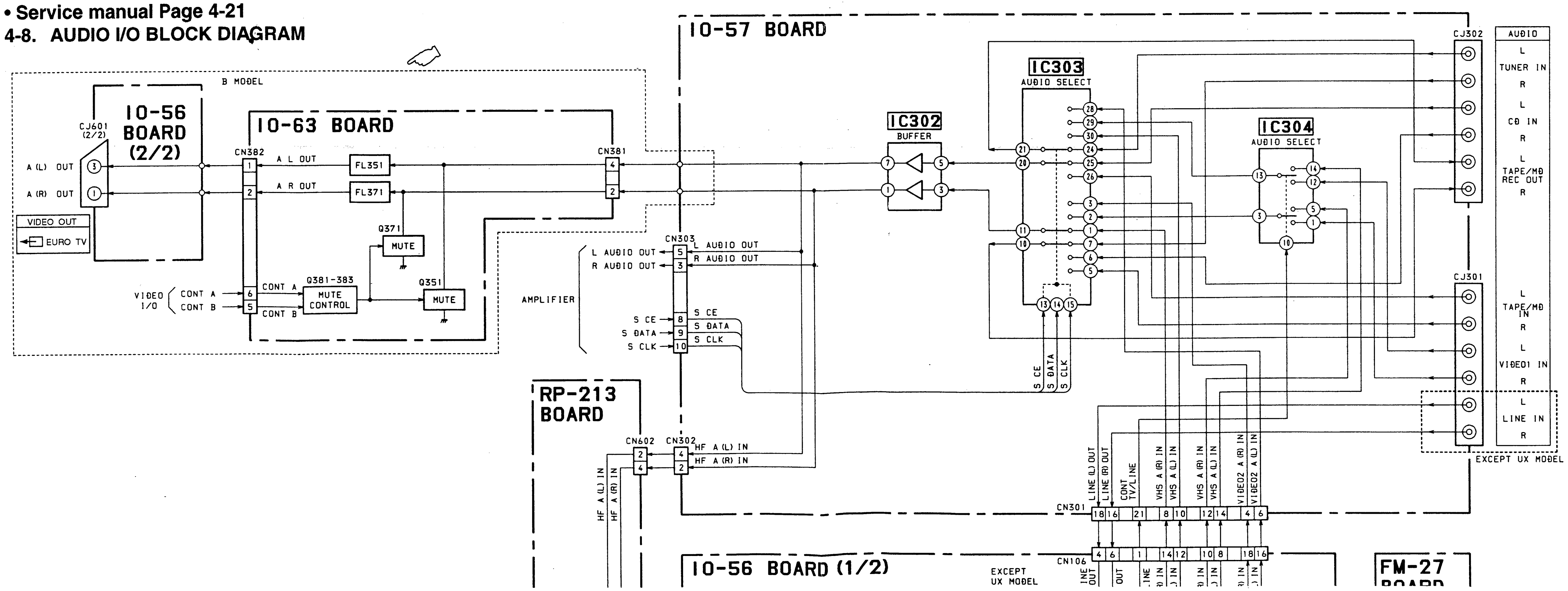
- Service manual Page 4-29

4-10. POWER BLOCK DIAGRAM


B MODEL
TK-39 BOARD
CN251
SW 5V
PB 5V
SECAM PROCESS
RF-43 BOARD
CN762
Q761 5V REG
D 6V
13V
30V REG
L761
RF761 RF UNIT
10-56 BOARD
CN103
SW 5V
L461
IC461 VIDEO SELECTOR
IC104 VIDEO SELECTOR
CN106
IC106 12V REG
IC101,102 AUDIO SELECTOR
EXCEPT UX MODEL
Q601, 602 AV CONT SWITCH
D106
L103
TI-45 BOARD
CN901
TR AC (HOT)
TR AC (COLD)
T901
TO-12 BOARD
CN902
VA1 VB1 VA2 VB2 VC1 VC2
MP-43 BOARD
CN801
RY801
B MODEL
10-63 BOARD
CN382
SW 5V

- Service manual Page 4-21

4-8. AUDIO I/O BLOCK DIAGRAM


B MODEL
CJ601 (2/2)
10-56 BOARD (2/2)
A (L) OUT
A (R) OUT
VIDEO OUT
EURO TV
10-63 BOARD
CN382
A L OUT
A R OUT
FL351
FL371
Q371 MUTE
Q351 MUTE
Q381-383 MUTE CONTROL
CONT A
CONT B
VIDEO I/O
CN381
10-57 BOARD
IC302 BUFFER
IC303 AUDIO SELECT
IC304 AUDIO SELECT
CN303
L AUDIO OUT
R AUDIO OUT
AMPLIFIER
S CE
S DATA
S CLK
RP-213 BOARD
CN602
CN302
HF A (L) IN
HF A (R) IN
CJ302
AUDIO
TUNER IN
CD IN
TAPE/MD REC OUT
CJ301
TAPE/MD IN
VIDEO1 IN
LINE IN
EXCEPT UX MODEL
CN301
LINE (L) OUT
LINE (R) OUT
CONT TV/LINE
VHS A (R) IN
VHS A (L) IN
VIDEO2 A (R) IN
VIDEO2 A (L) IN
CN106
EXCEPT UX MODEL
10-56 BOARD (1/2)
FM-27 BOARD

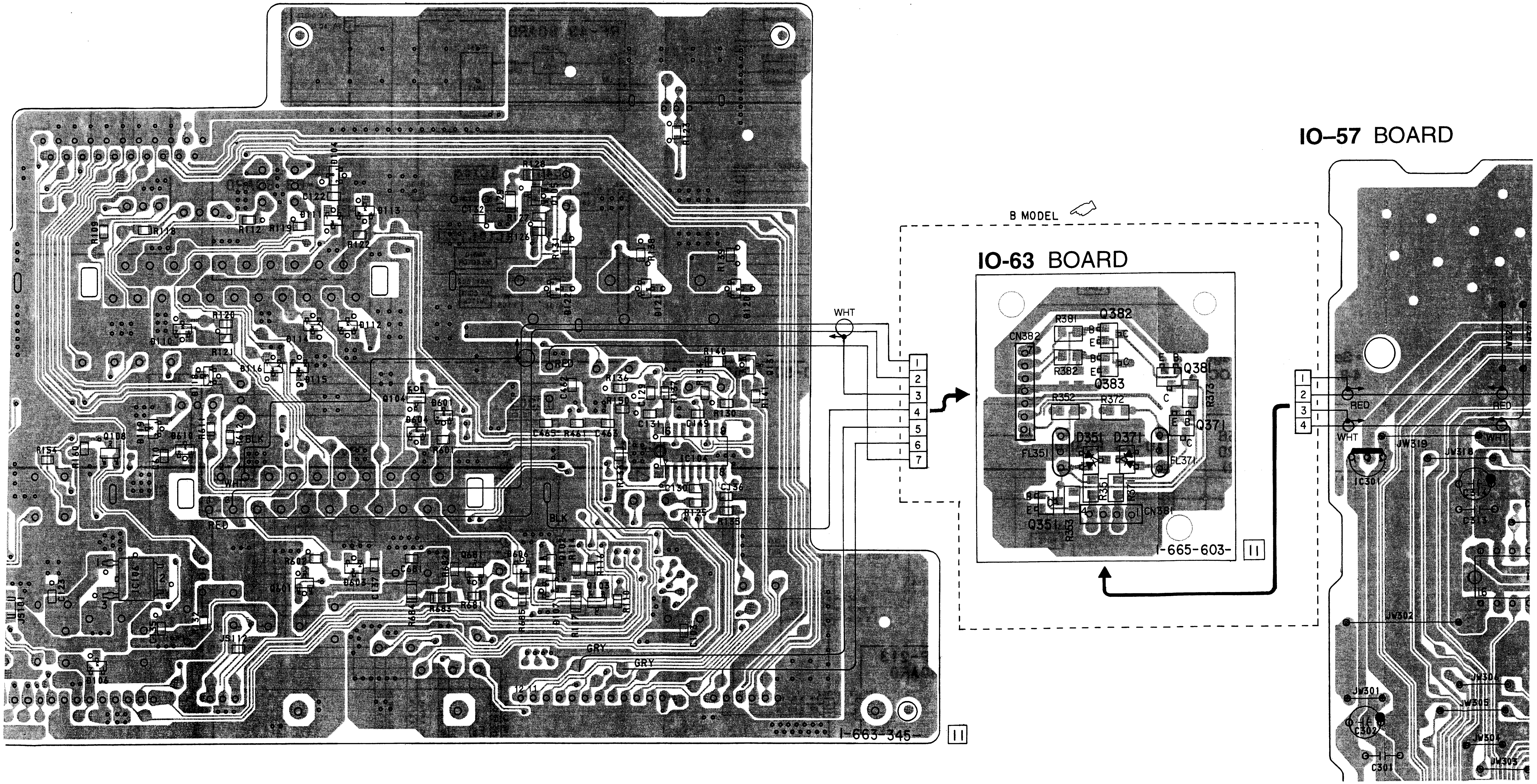
SECTION 5
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

IO-56 (VIDEO/AUDIO/CANAL+ INPUT/OUTPUT) IO-63 (AUDIO OUTPUT)
IO-57 (AUDIO INPUT/OUTPUT) PRINTED WIRING BOARDS
– Ref. No. IO-56 BOARD, IO-63 BOARD, IO-57 BOARD : 7,000 series –

• Service manual Page IO-56 board : 5-53
IO-57 board : 5-59

• ☞ : Added portion

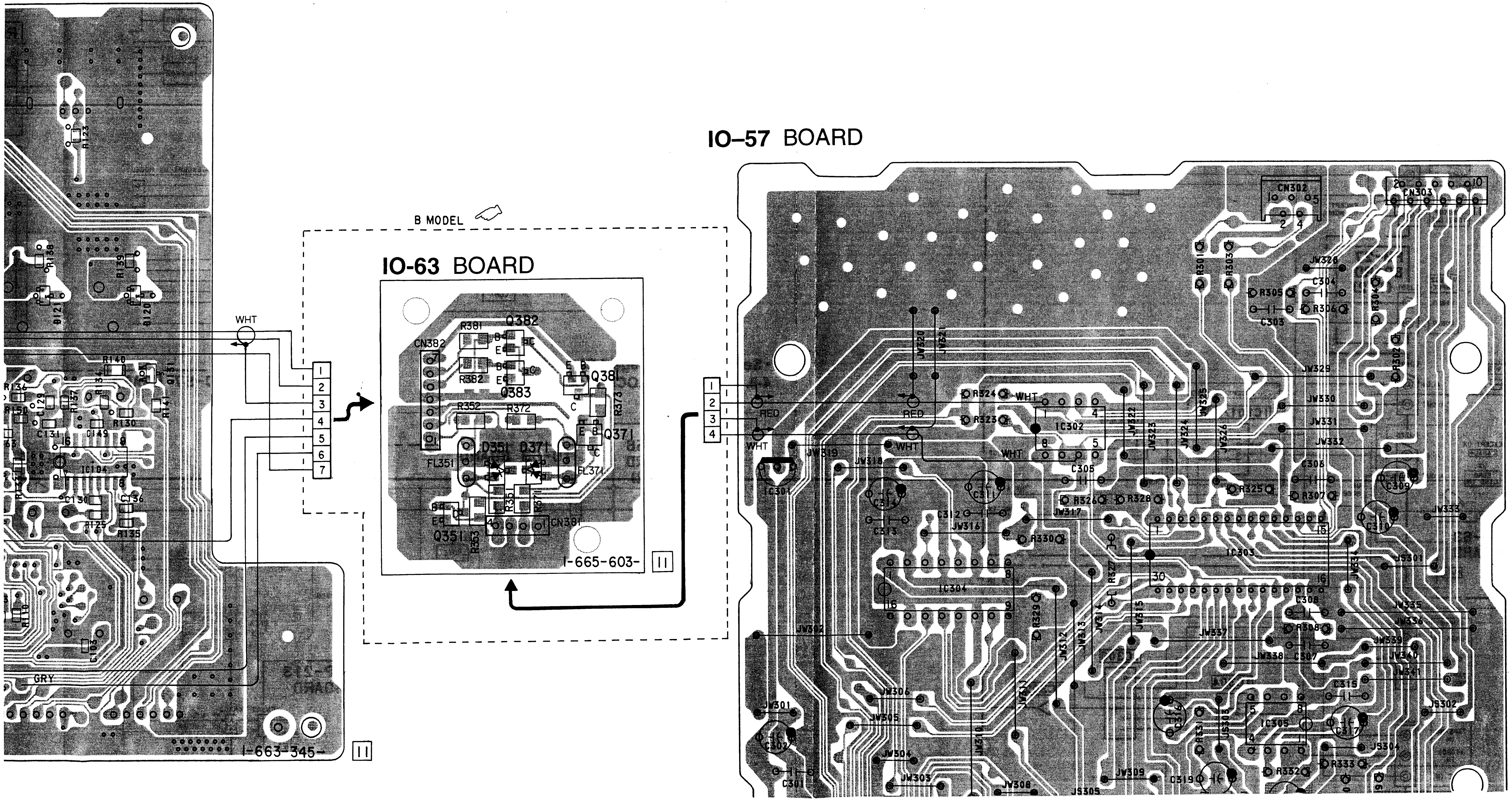
IO–56 BOARD (CONDUCTOR SIDE)


IO–57 BOARD

IO-63 BOARD

WHT
RED
BLK
GRY
1
2
3
4
5
6
7
1-663-345-
11
B MODEL
CN382
R381
Q382
R382
Q383
Q381
R352
R372
R373
Q371
D351
D371
FL351
FL371
Q351
CN381
1-665-603-
11
IC301
JW319
JW318
JW302
JW301
JW304
JW305
C301
C302
IC101
IC104
R120
R121
R136
R140
R130
R125
R135
C131
C130
C136
R601
R461
C465
C463
Q104
Q604
Q603
Q601
R681
R683
R684

Page IO-56 board : 5-53 • ☞ : Added portion
IO-57 board : 5-59

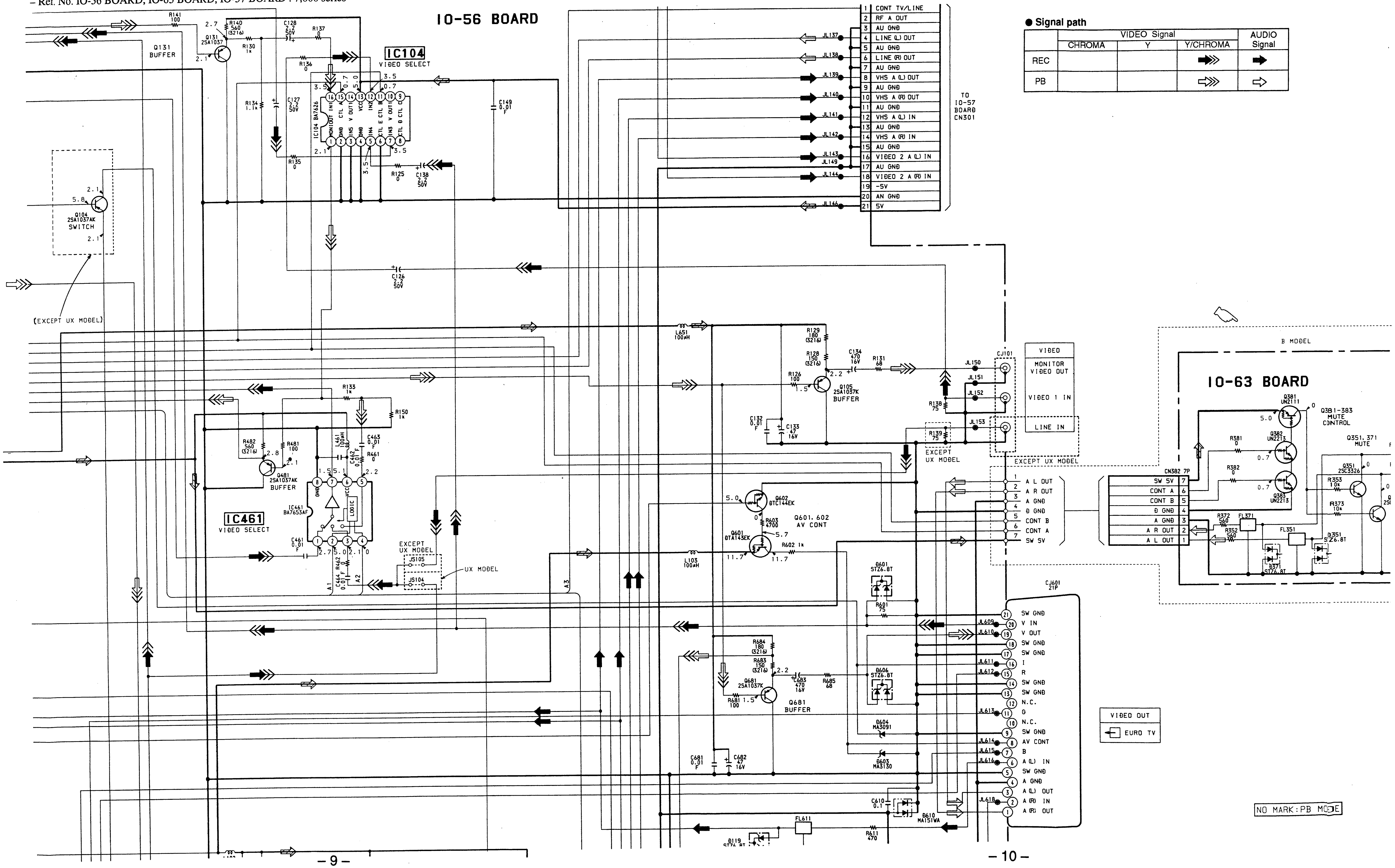

IO-57 BOARD
IO-63 BOARD
B MODEL
1-665-603- 11
1-663-345- 11
WHT
RED
GRY
CN382
CN381
CN302
CN303
Q381
Q382
Q383
Q371
Q351
D351
D371
FL351
FL371
R381
R382
R352
R372
R373
R353
IC104
IC301
IC302
IC303
IC304
IC305
1
2
3
4
5
6
7

IO-56 (VIDEO/AUDIO/CANAL+ INPUT/OUTPUT) IO-63 (AUDIO OUTPUT) IO-57 (AUDIO INPUT/OUTPUT) SCHEMATIC DIAGRAMS

– Ref. No. IO-56 BOARD, IO-63 BOARD, IO-57 BOARD : 7,000 series –

• Service manual Page IO-56 board : 5-56
IO-57 board : 5-58

• ☞ : Added portion



● Signal path

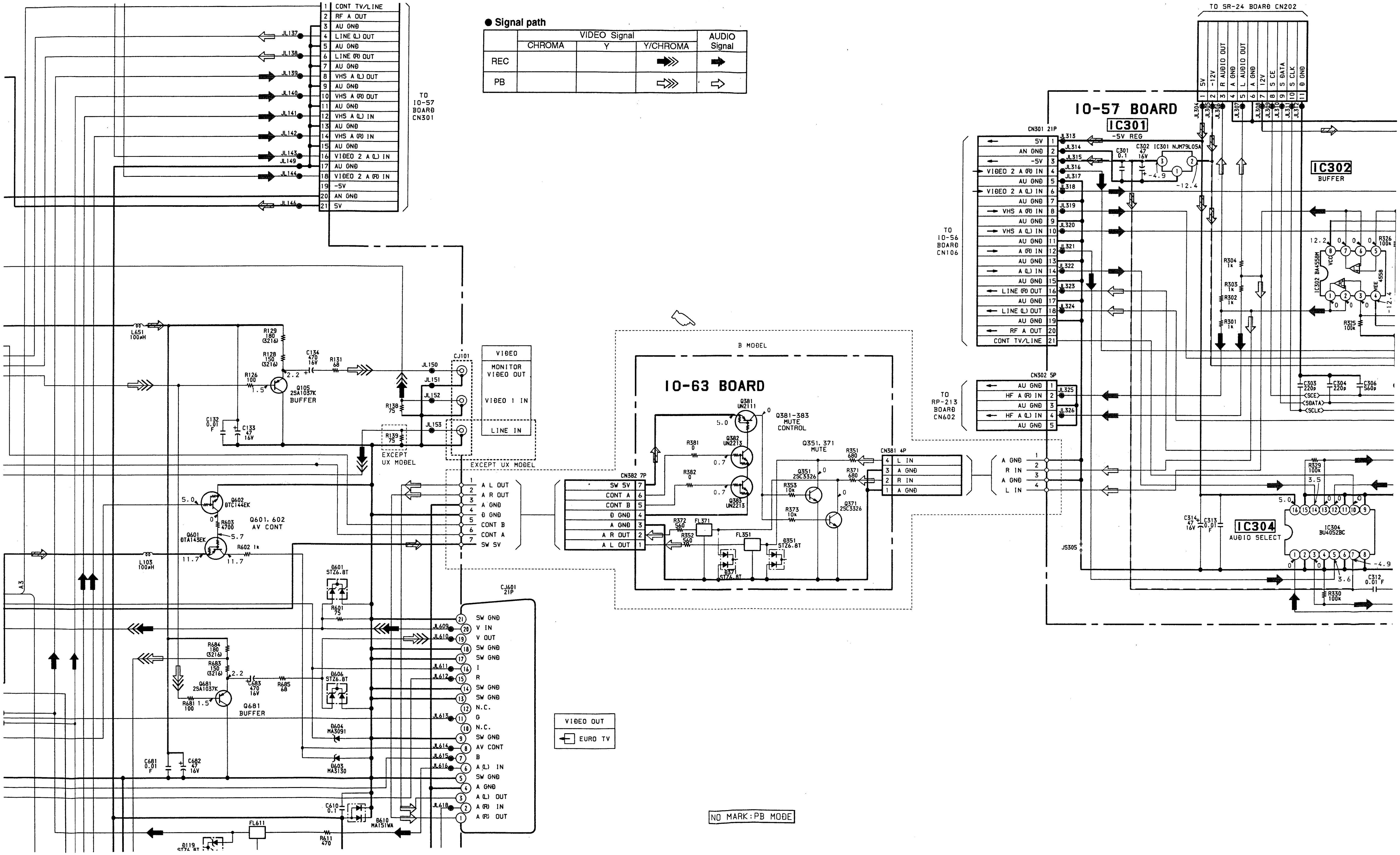
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			⇛	➡
PB			⇛	⇨

IO-56 BOARD
IC104
VIDEO SELECT
IC104 BA7626
MONITOUT
IN1
CTL A
V OUT1
VCC
IN2
CTL B
V OUT2
CTL D
GND
IN5
IN3
CTL E
IN4
Q131
2SA1037
BUFFER
Q104
2SA1037AK
SWITCH
(EXCEPT UX MODEL)
R141 100
R140 560 (3216)
R130 1k
C128 2.2 50V
R137 0
R136 0
R134 1.1k
C127 2.2 50V
C149 0.01 F
R135 0
R125 0
C138 2.2 50V
C126 2.2 50V
IC461
VIDEO SELECT
IC461 BA7653AF
LOGIC
Q481
2SA1037AK
BUFFER
R482 560 (3216)
R481 100
R133 1k
R150 1k
L461 100μH
C463 0.01 F
C462 0.01 F
R461 0
C461 0.01 F
R462 0
C464 0.01 F
EXCEPT UX MODEL
JS105
JS104
UX MODEL
A1
A2
A3
L651 100μH
R129 180 (3216)
R128 150 (3216)
C134 470 16V
R131 68
R126 100
Q105
2SA1037K
BUFFER
C132 0.01 F
C133 47 16V
R138 75
R139 75
EXCEPT UX MODEL
Q602
DTC144EK
R603 4700
Q601, 602
AV CONT
Q601
DTA143EK
R602 1k
L103 100μH
D601 STZ6.8T
R601 75
R684 180 (3216)
R683 150 (3216)
C683 470 16V
R685 68
Q681
2SA1037K
R681 100
Q681
BUFFER
D606 STZ6.8T
D604 MA3091
D603 MA3130
C681 0.01 F
C682 47 16V
C610 0.1
D610 MA151WA
FL611
R611 470
D119 STZ6.8T
JL137
JL138
JL139
JL140
JL141
JL142
JL143
JL149
JL144
JL146
1 CONT TV/LINE
2 RF A OUT
3 AU GND
4 LINE (L) OUT
5 AU GND
6 LINE (R) OUT
7 AU GND
8 VHS A (L) OUT
9 AU GND
10 VHS A (R) OUT
11 AU GND
12 VHS A (L) IN
13 AU GND
14 VHS A (R) IN
15 AU GND
16 VIDEO 2 A (L) IN
17 AU GND
18 VIDEO 2 A (R) IN
19 -5V
20 AN GND
21 5V
TO IO-57 BOARD CN301
CJ101
JL150
JL151
JL152
JL153
VIDEO
MONITOR VIDEO OUT
VIDEO 1 IN
LINE IN
EXCEPT UX MODEL
1 A L OUT
2 A R OUT
3 A GND
4 D GND
5 CONT B
6 CONT A
7 SW 5V
CJ601 21P
21 SW GND
20 V IN
19 V OUT
18 SW GND
17 SW GND
16 I
15 R
14 SW GND
13 SW GND
12 N.C.
11 G
10 N.C.
9 SW GND
8 AV CONT
7 B
6 A (L) IN
5 SW GND
4 A GND
3 A (L) OUT
2 A (R) IN
1 A (R) OUT
JL609
JL610
JL611
JL612
JL613
JL614
JL615
JL616
JL618
VIDEO OUT
EURO TV
B MODEL
IO-63 BOARD
Q381 UN2111
Q381-383
MUTE CONTROL
R381 0
Q382 UN2213
R382 0
Q383 UN2213
Q351, 371
MUTE
Q351 2SC3326
R353 10k
R373 10k
CN382 7P
SW 5V 7
CONT A 6
CONT B 5
D GND 4
A GND 3
A R OUT 2
A L OUT 1
R372 560
FL371
R352 560
FL351
D371 STZ6.8T
D351 STZ6.8T
NO MARK : PB MODE

ual Page IO-56 board : 5-56 • ☞ : Added portion
IO-57 board : 5-58

● **Signal path**

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨


1 CONT TV/LINE
2 RF A OUT
3 AU GND
4 LINE (L) OUT
5 AU GND
6 LINE (R) OUT
7 AU GND
8 VHS A (L) OUT
9 AU GND
10 VHS A (R) OUT
11 AU GND
12 VHS A (L) IN
13 AU GND
14 VHS A (R) IN
15 AU GND
16 VIDEO 2 A (L) IN
17 AU GND
18 VIDEO 2 A (R) IN
19 -5V
20 AN GND
21 5V
TO IO-57 BOARD CN301
JL137
JL138
JL139
JL140
JL141
JL142
JL143
JL149
JL144
JL146
L651 100μH
R129 180 (3216)
R128 150 (3216)
R126 100
Q105 2SA1037K BUFFER
C134 470 16V
R131 68
C132 0.01 F
C133 47 16V
JL150
JL151
JL152
JL153
R138 75
R139 75
CJ101
VIDEO
MONITOR VIDEO OUT
VIDEO 1 IN
LINE IN
EXCEPT UX MODEL
Q602 DTC144EK
R603 4700
Q601, 602 AV CONT
Q601 DTA143EK
R602 1k
L103 100μH
1 A L OUT
2 A R OUT
3 A GND
4 D GND
5 CONT B
6 CONT A
7 SW 5V
D601 STZ6.8T
R601 75
CJ601 21P
21 SW GND
20 V IN
19 V OUT
18 SW GND
17 SW GND
16 I
15 R
14 SW GND
13 SW GND
12 N.C.
11 G
10 N.C.
9 SW GND
8 AV CONT
7 B
6 A (L) IN
5 SW GND
4 A GND
3 A (L) OUT
2 A (R) IN
1 A (R) OUT
JL609
JL610
JL611
JL612
JL613
JL614
JL615
JL616
JL618
R684 180 (3216)
R683 150 (3216)
Q681 2SA1037K
R681 100
C683 470 16V
R685 68
Q681 BUFFER
D606 STZ6.8T
D604 MA3091
D603 MA3130
C681 0.01 F
C682 47 16V
C610 0.1
D610 MA151WA
FL611
R611 470
D119 STZ6.8T
VIDEO OUT
EURO TV
B MODEL
IO-63 BOARD
Q381 UN2111
Q381-383 MUTE CONTROL
Q382 UN2213
Q383 UN2213
R381 0
R382 0
Q351, 371 MUTE
Q351 2SC3326
Q371 2SC3326
R351 680
R371 680
R353 10k
R373 10k
R372 560
R352 560
FL371
FL351
D371 STZ6.8T
D351 STZ6.8T
CN382 7P
7 SW 5V
6 CONT A
5 CONT B
4 D GND
3 A GND
2 A R OUT
1 A L OUT
CN381 4P
4 L IN
3 A GND
2 R IN
1 A GND
NO MARK:PB MODE
TO SR-24 BOARD CN202
1 5V
2 -12V
3 R AUDIO OUT
4 A GND
5 L AUDIO OUT
6 A GND
7 12V
8 S CE
9 S DATA
10 S CLK
11 D GND
IO-57 BOARD
IC301
-5V REG
C302 47 16V
IC301 NJM79L05A
C301 0.1
CN301 21P
1 5V
2 AN GND
3 -5V
4 VIDEO 2 A (R) IN
5 AU GND
6 VIDEO 2 A (L) IN
7 AU GND
8 VHS A (R) IN
9 AU GND
10 VHS A (L) IN
11 AU GND
12 A (R) IN
13 AU GND
14 A (L) IN
15 AU GND
16 LINE (R) OUT
17 AU GND
18 LINE (L) OUT
19 AU GND
20 RF A OUT
21 CONT TV/LINE
TO IO-56 BOARD CN106
JL313
JL314
JL315
JL316
JL317
JL318
JL319
JL320
JL321
JL322
JL323
JL324
IC302
BUFFER
IC302 BA4558N
R304 1k
R303 1k
R302 1k
R301 1k
R326 100k
R325 100k
CN302 5P
1 AU GND
2 HF A (R) IN
3 AU GND
4 HF A (L) IN
5 AU GND
TO RP-213 BOARD CN602
JL325
JL326
C303 220p
C304 220p
C306 560p
SCE
SDATA
SCLK
A GND
R IN
A GND
L IN
R329 100k
IC304
AUDIO SELECT
IC304 BU4052BC
C314 47 16V
C313 0.01 F
JS305
R330 100k
C312 0.01 F

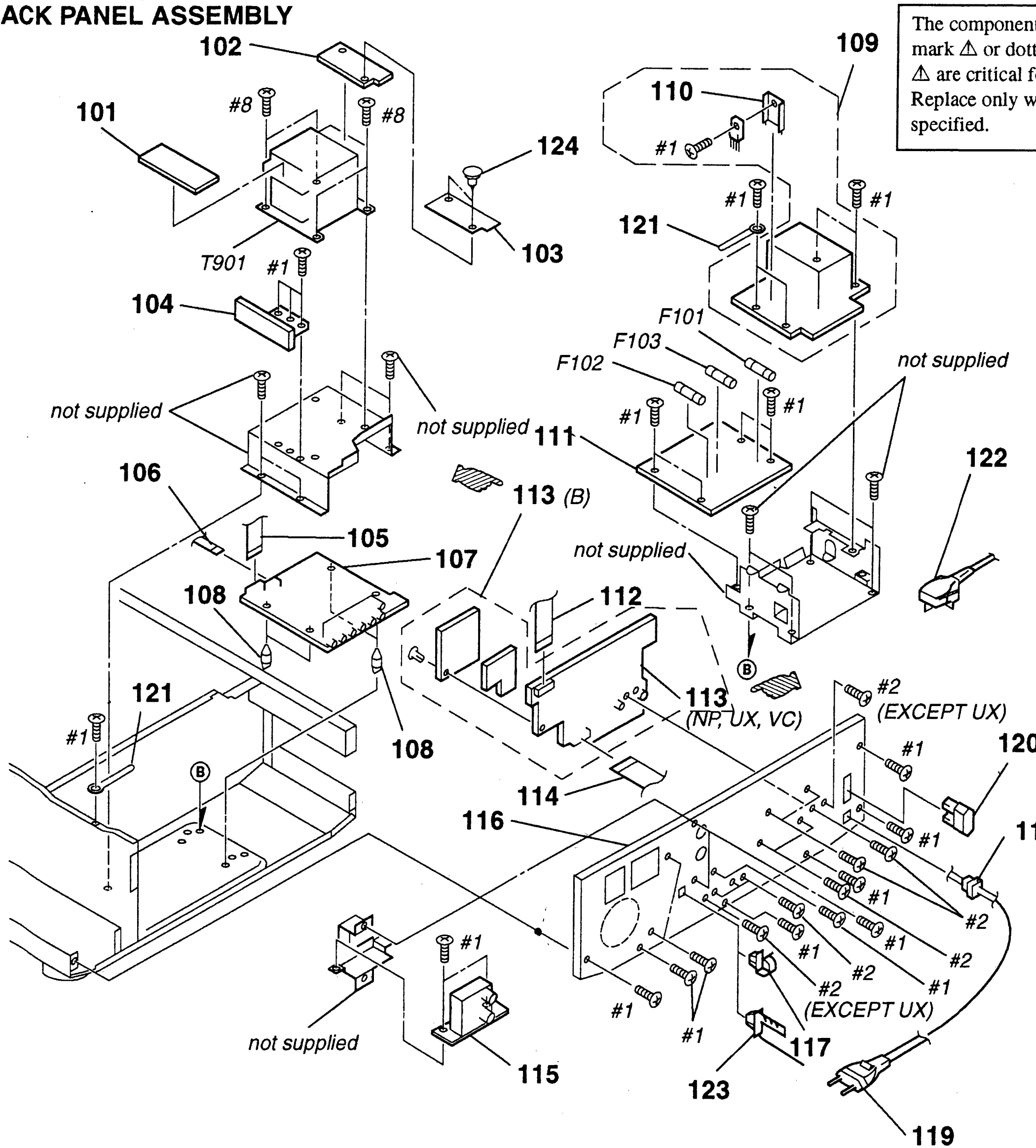
SECTION 6
REPAIR PARTS LIST

6-1. EXPLODED VIEWS

- Service manual Page 6-3
- ▨ : Changed portion

6-1-3. BACK PANEL ASSEMBLY

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.



Ref. No.	Part No.	Description	Remark
* 101	1-663-361-11	TO-12 BOARD	
* 102	1-663-360-11	TI-45 BOARD	
103	3-974-078-01	COVER (TRANSFORMER)	
* 104	1-663-366-11	RG-40 BOARD	
105	1-777-618-11	CABLE, FLAT (FSI-1) 11P	
106	1-777-616-11	CABLE, FLAT (FRI-3) 5P	
* 107	A-6794-276-A	IO-57 BOARD, COMPLETE (UX)	
* 107	A-6794-282-A	IO-57 BOARD, COMPLETE (VC, NP) ▨	
* 107	A-6796-607-A	IO-57 BOARD, COMPLETE (B) ▨	
* 108	4-884-834-00	SUPPORT, PC	
* 109	A-6794-265-A	PS-379 BOARD, COMPLETE	
* 110	3-951-893-01	HEAT SINK	
* 111	1-663-351-12	AC-106 BOARD	
112	1-777-615-11	CABLE, FLAT (FRI-2) 17P	
* 113	A-6794-259-A	IO-56 BOARD, COMPLETE (UX)	
* 113	A-6794-280-A	IO-56 BOARD, COMPLETE (VC, NP) ▨	
* 113	A-6796-606-A	IO-56 BOARD, COMPLETE (B) ▨	
114	1-777-617-11	CABLE, FLAT (FII-1) 21P	

Ref. No.	Part No.	Description	Remark
* 115	1-663-347-11	RF-43 BOARD	
* 116	3-973-328-01	PANEL, BACK (VC)	
* 116	3-973-328-11	PANEL, BACK (NP)	
* 116	3-973-328-21	PANEL, BACK (B)	
* 116	3-973-328-31	PANEL, BACK (UX)	
* 117	4-949-235-01	HOOK (VC,B,NP)	
* 118	3-703-244-00	BUSHING (2104), CORD	
⚠119	1-769-744-11	CORD, POWER (VC,B,NP)	
⚠120	1-526-794-11	OUTLET, AC (VC,B,NP)	
121	3-703-397-01	STOPPER, WIRING	
⚠122	1-696-570-21	CORD, POWER (UX)	
123	4-956-370-02	BAND, PLUG FIXED (UX)	
124	4-812-134-11	RIVET (DIA. 3.5), NYLON	
⚠F101	1-532-203-00	FUSE (2A/250V)	
⚠F102	1-532-259-00	FUSE (1.6A/250V)	
⚠F103	1-532-286-00	FUSE (2.5A/250V) (VC,B,NP)	
⚠T901	1-429-524-21	TRANSFORMER, POWER	

6-2. ELECTRICAL PARTS LIST

IO-63

Ref. No.	Part No.	Description	Remark
		IO-63 BOARD	
			(Supplied with IO-56 (B) board)
		***********	
			(Ref. No. 7,000 series)
		< CONNECTOR >	
* CN381	1-506-483-21	PIN, CONNECTOR 4P	
* CN382	1-506-486-21	PIN, CONNECTOR 7P	
		< DIODE>	
D351	8-719-016-73	DIODE STZ6.8T	
D371	8-719-016-73	DIODE STZ6.8T	
		< FILTER >	
FL351	1-236-163-21	ENCAPSULATED COMPONENT	
FL371	1-236-163-21	ENCAPSULATED COMPONENT	
		< TRANSISTOR >	
Q351	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q371	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q381	8-729-424-08	TRANSISTOR UN2111	
Q382	8-729-421-19	TRANSISTOR UN2213	
Q383	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR>	
R351	1-216-045-00	METAL CHIP 680 5% 1/10W	
R352	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R353	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R371	1-216-045-00	METAL CHIP 680 5% 1/10W	
R372	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R373	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R381	1-216-295-91	CONDUCTOR, CHIP (2012)	
R382	1-216-295-91	CONDUCTOR, CHIP (2012)	

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6-2. ELECTRICAL PARTS LIST

IO-63

Ref. No.	Part No.	Description	Remark
		IO-63 BOARD	
			(Supplied with IO-56 (B) board)
		***********	
			(Ref. No. 7,000 series)
		< CONNECTOR >	
* CN381	1-506-483-21	PIN, CONNECTOR 4P	
* CN382	1-506-486-21	PIN, CONNECTOR 7P	
		< DIODE>	
D351	8-719-016-73	DIODE STZ6.8T	
D371	8-719-016-73	DIODE STZ6.8T	
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		< TRANSISTOR >	
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Q371	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q381	8-729-424-08	TRANSISTOR UN2111	
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Q383	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR>	
R351	1-216-045-00	METAL CHIP 680 5% 1/10W	
R352	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R353	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R371	1-216-045-00	METAL CHIP 680 5% 1/10W	
R372	1-216-043-91	METAL GLAZE 560 5% 1/10W	
R373	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R381	1-216-295-91	CONDUCTOR, CHIP (2012)	
R382	1-216-295-91	CONDUCTOR, CHIP (2012)	

Remark

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Home A&V Products Company

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